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ABSTRACT

This action research project implemented and evaluated a program for improving student transfer of knowledge to real life experiences. The targeted population consisted of second, sixth, and tenth grade students in a Midwestern community located outside of a major city. Evidence suggested a need for this program as documented by teacher generated assessments, teacher observations, and student reflection. Analysis of probable cause data revealed that students had difficulty transferring knowledge due to the lack of motivation and the inability to make connections between classroom lessons and real life situations. Other factors were students' ages, students' developmental levels, and students' lack of prior knowledge. A review of solution strategies suggested that students improve their knowledge transfer through the use of multiple intelligences, cooperative learning experiences, and journaling. These strategies were implemented over 15 weeks. Post intervention data indicated an increase in student transfer of knowledge from classroom to daily life activities. (Author/SD)

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INCREASING STUDENT ABILITY TO TRANSFER KNOWLEDGE THROUGH THE USE OF MULTIPLE INTELLIGENCES

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ABSTRACT

This report describes a program for improving student transfer of knowledge to real life experiences. The targeted population consists of second, sixth, and tenth grade students in a Midwestern community located outside of a major city. Evidence suggests a need for this program as documented by teacher generated assessments, teacher documented observations, and student reflection.

Analysis of probable cause data revealed that students have difficulty transferring knowledge due to the lack of motivation and the inability to make connections between classroom lessons and real life situations. Other factors were students' ages, students' developmental levels, and students' lack of prior knowledge.

A review of solution strategies suggests that students improve their knowledge transfer through the use of multiple intelligences, cooperative learning experiences, and journaling. These strategies will be implemented in this study.

Post intervention data indicated an increase in student transfer of knowledge. Researchers observed the increase of student transfer of learning from classroom to daily life activities.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The targeted second, sixth, and tenth grade students exhibit a lack of ability to transfer knowledge to real life experiences. Evidence for the existence of the problem includes teacher observation, anecdotal records, journal entries, and student assessments that document the need to apply student learning to daily activities.

Immediate Problem Context

The schools discussed in this report are located in different communities outside a major Midwest city. School A is a public elementary (grades pre-kindergarten through four) and School B is a public middle school (grades six through eight). School C is a private Catholic high school (grades nine through twelve).

School A

School A has a total enrollment of 306 students and provides educational services from pre-kindergarten through fourth grade. When students are promoted to fifth grade, they transfer to a middle school. After completing eighth grade, students attend one of two local high schools.

School A is 50 years old with one building addition dating to 1953 and has no space for further expansion. The school library and computer laboratory occupy two adjoining classrooms. The school gymnasium serves as both the lunchroom and assembly hall. Due to a lack of classroom space, one class is regularly held in a basement hallway. Since there are no

classrooms dedicated to art or music, these teachers must bring their materials and supplies to each classroom on a cart.

Many students attending School A live with both parents in a single family home, while others live in multiple family residences with an extended family occupying other apartments in the building. Some students reside in either of two local mobile home parks.

Table 1 displays percentages of low-income families in School A, School A's district, and the State. In contrast to state and district rates of 36.3% and 35.6% respectively, 26.1% of the students at School A are determined to come from low-income families. Low income families are defined by one or more of several factors, among which are receiving public aid, eligibility to receive free or reduced price lunches, or being supported in foster homes with public funds.

Table 1

School A: Income

	School A	District	State
Low income families	26.1%	35.6%	36.3%

Students come from varied ethnic backgrounds; a break down of racial/ethnic groups, and other significant school, and state factors are displayed in Table 2. The student body of School A contains a greater Hispanic and limited proficiency population than those of the district and state. Of the total student body at School A, 17.3% are eligible for bilingual education. Although the staff at School A includes no teachers of Hispanic ethnicity (see Table 4), it does include one

full-time English as a second language teacher and two Hispanic, Spanish speaking teaching assistants.

Table 2

School A: Student Ethnicity and English Proficiency

	School A	District	State
White	49.7%	26.7%	62.6%
Hispanic	42.2%	37.3%	13.3%
Asian/Pacific/Other	5.2%	2.9%	3.2%
Black	2.9%	32.7%	20.8%
Limited English Proficiency	17.3%	16.9%	6.3%

As shown in Table 3, attendance rates at School A compare favorably with those of both the district and state at approximately 95%. School A has a relatively stable student body with a mobility rate less than 50% of the district rate and 33% lower than the statewide rate. Within the figures for mobility, some students may be counted more than once. Truancy at School A is lower than that experienced statewide, representing one student in the district. Average class size at School A is higher than both the district and state at 24.27 students. District-wide, average elementary class size is 22.23 students, statewide average elementary class size is 22.70 students.

Table 3

School A: Attendance, Mobility and Chronic Truancy

	School A	District	State
Attendance rate	94.8%	95.1%	93.9%
Mobility rate	12.1%	30.9%	18.2%
Truancy	0.4%	0.0%	2.3%

School A has two half day kindergarten classes, and one all day kindergarten class, three first grade classrooms, three second grade classrooms, two each third and fourth grade classes, and one second/third grade learning disabilities class. Teachers instruct all academic classes and students are heterogeneously grouped. The regular school day begins at 8:55 AM and ends at 3:30 PM; various teacher instructed programs are offered daily until 4:30 PM. After school programs include physical education club, computer club, science club and tutoring in reading .

School A has a Parent Teacher Association that became actively involved in helping to pass the referendum to build the new school structures. The parent organization raises money each year to take the students on an all school field trip to local museums. Many parents and grandparents volunteer to tutor students in reading and help in the learning center.

Table 4 compares the Illinois Goal Assessment Program (IGAP) performance standards for reading in grade three. In School A, 72% of third grade students meet state goals while statewide, 51% of third grade students meet state goals. Students in School A's third grade exceed state standards for reading at rates 41% greater than the state.

Table 4

School A: IGAP State Performance Standards for Reading - Grade Three

	School A	District	State
Do not meet goals	9%	24%	28%
Meet goals	72%	63%	51%
Exceed goals	20%	13%	21%

The district's four elementary schools consist of kindergarten through fourth grade. Two of the four year elementary buildings provide federally funded pre-kindergarten classes for three and four year old students. Additional services in each elementary school include one full time resource teacher for learning disabled and behaviorally disordered students, one full-time Chapter One reading teacher, one full-time counselor, and one full time English as a second language teacher. Other district services include two speech therapists, and one social worker shared between four elementary schools. Each of the district's six schools employs one guidance instruction counselor.

In each school, certified instructors provide students in grades one through four with physical education instruction for 30 minutes daily, music instruction during the first semester for 55 minutes per week and art for 55 minutes per week in the second semester. Also included in the curriculum is a sixty minute learning center program, a ten week 30 minute computer unit, and two ten week guidance programs addressing personal safety conflict resolution.

Tables 5, 6, and 7 display the racial/ethnic background, gender, experience, and salaries of full-time classroom teachers. With an average experience level of 10 years, the district

average salary is two-thirds of the state average. Salary levels reflect approximate parity with statewide levels. District wide, 30.6% of teachers and administrators have earned a masters degree or above. While School A has a lower male to female teacher ratio that is disproportionate to those district and statewide, its male physical education teacher is in a position to teach all students except those in pre-kindergarten and kindergarten.Table 5

School A: District Teacher Ethnicity

	School A	District	State
White	100.0%	94.3%	84.8%
Black	0%	3.2%	11.3%
Hispanic	0%	1.9%	3.1%
Asian/Pacific	0%	0.6%	.07%

Table 6

School A: District Teacher Gender

	School A	District	State
Female	94.0%	88.5%	75.2%
Male	6.0%	11.5%	24.8%

Table 7

School A: Average Experience Salary

	District	State
Years of experience	10	15
Teacher Salary	$32,606	$41,883
Administrator Salary	$75,161	$73,423
Bachelors Degree	69.4%	53.5%
Masters Degree and Above	30.6%	46.3%

Local property tax, equalized assessed valuation, and per pupil expenditures are compared with statewide figures in Table 8. The district tax rate is higher than that statewide, and the assessed valuation is lower than statewide averages. School District A spends $596 or 15% less per pupil than other statewide elementary districts.

Table 8

School A: District/State Funding Comparison

	District	State[1]
Equalized assessed valuation per pupil	$140,445	$159,048[1]
Total school tax rate per $100	$3.48	$3.06
Instructional expenditure/student	$2,976	$3,505

[1] Statewide average for all large elementary districts

As one of the district's two oldest elementary buildings, School A has insufficient electrical provisions to safely accommodate modern computer laboratories, listening stations, and other necessary educational tools. Structural repairs to both buildings (one is 50 years old) have been determined to outweigh the cost of replacement. Both buildings are located within

residential neighborhoods, thus limiting the option of building additions. One of the older elementary buildings has been determined eligible for soundproofing funds due to its proximity to a large international airport.

Voters in the district have recently passed a referendum to fund the replacement of the district's two oldest schools, as well as to construct an addition on a third school building. Federal soundproofing and air conditioning funds may provide significant financial assistance to this project.

Community A

The community of School A is a post World War II development occupying 4.4 square miles, located approximately 18 miles outside a very large midwestern city. Its population is 12,009, with a median age of 35.1 years. The largest population segment is White and is comprised of 8,189 residents; the second largest segment is Hispanic with a population of 2,028. The balance of the population is composed of Black, Asian /Pacific Islanders, and American Indians.

Industry within the community includes factories, food distribution services, headquarters for a large local grocery chain, a railroad switching yard, over the road distribution facilities, a recycling warehouse for a large communications company, large national and local chain retail businesses, production facilities for a large regional bakery, and many small and family operated businesses. This abundance of industry and business provides a large job pool and should serve to maintain a high level of employment throughout age groups within the community.

Public facilities include a recently modernized library, a small hospital, and a large retirement residence. Many small parks, one large park and an indoor swimming pool provide adequate and varied recreational opportunities, and offer organized programs across a wide spectrum of age groups. An active American Legion Post augments both community and recreational opportunities.

Various types of affordable housing are available within the community. Housing within the community of School A consists of approximately 2,233 single family homes bearing a median home price of $112,878, a thousand apartment units with a median gross rent of $483 per month, and 619 mobile homes in two mobile home parks.

The community is served by a police force of 27 officers. The police provide Drug Abuse Resistance Education programs to encourage the district's students to resist drugs and gangs. One officer is also assigned as liaison between a local high school and the police department. A two year comparison of community crime rates to those of the state is shown in Table 9. While crime rates for the community of School A were significantly below those of the state in 1996, the community experienced a rise of 6.8% in 1997 compared to a statewide reduction of 2.7%.

Table 9

School A: Crimes per 100,000 Residents

Year	Community	State
1997	5,212	5,246
1996	4,877	5,395

School B

School B is a middle school with a population of more than 700 adolescents in grades six, seven, and eight. The school is designed to accommodate the transitional period from childhood to young adulthood.

The school serves students who are from a variety of ethnic backgrounds. As seen in Table 10, the student body of School B contains a comparable White, Hispanic, and Native American population when compared to state averages, although there are marked differences between percentages of Black and Asian/Pacific Islander students. The percentage of Black students, at 3.4%, is 17.4% lower than the state's percentage, while the Asian/Pacific Islander student percentage, at 21.4%, is 18.2% higher than the state average.

Table 10

School B: Student Ethnicity

Race	School B	District	State
White	64.0%	59.9%	62.6%
Asian/Pacific Islander	21.4%	20.9%	3.2%
Hispanic	11.0%	15.6%	13.3%
Black	3.4%	3.5%	20.8%
Native American	0.1%	0.1%	0.2%

Students who are from low-income families receiving public aid or eligible for free or reduced price lunches comprise 2% of the student population. By contrast, state averages for low income are 36.3%.

The student mobility rate, based on the number of students who enroll in or leave during the academic year, is 7.7%. Chronic truants are those students who are absent from school without a valid cause for 10% or more of the previous 180 days. School B has a very small percentage (0.4%) of the population chronically truant. Attendance rates are comparable with state averages, as shown in Table 11.

Table 11

School B: Attendance, Mobility and Chronic Truancy

	School	District	State
Attendance	95.4%	95.6%	93.9%
Mobility	7.7%	12.1%	18.2%
Chronic Truancy	0.4%	0.3%	2.3%
Number of Chronic Truants	3	6	43,167

Since the state does not require figures for every grade, seventh grade enrollment figures are not reported in the school's Report Card. However, average class size in grade six is 19.0, and is 21.3 in grade eight. As shown in Table 12, both of these figures are 2-4% below comparable averages for state class sizes in these grades.

Table 12

School B: Class Size

	School	District	State
Grade 6	19.0	19.0	24.3
Grade 8	21.3	21.3	23.5

School B has figures slightly below state averages in the areas of pupil-teacher ratio, pupil-certified ratio, and pupil-administrator ratio. The pupil-teacher ratio for School B is 18.8 to 1 which is slightly below the state's average of 20.1 to 1. School B's pupil-certified staff ratio of 14.3 to 1 is comparable to the 14.6 to 1 figure reported as the state average. The pupil-administrator ratio for the district is 239.7 to 1, while the state average is somewhat higher at 250.6 to 1.

School B has a professional faculty that approaches 60. A principal and an associate principal administer the school; administration services will expand for the 1999-2000 school year with the addition of a school dean. Discipline will be the dean's chief responsibility for the middle school. Also on staff are a social worker, counselor, psychologist, part-time school nurse, library media specialist, and Title I reading specialist. Provided for School B by district services are curriculum and instruction specialists, a gifted coordinator, speech pathologist, computer specialist, and math-science coordinator.

For 1998-1999, the district employed 132 school personnel categorized as classroom teachers. As shown in Table 13, District B has a majority (90.1%) of female teachers. Since the racial ethnicity of the staff is not diverse, the background of the staff is disproportionate to that of the students at the middle school.

Table 13

District B: Teacher Racial Ethnicity and Gender

	District	State
White	97.7%	84.8%
Asian/Pacific Islander	2.3%	0.7%
Hispanic	0.0%	3.1%
Black	0.0%	11.3%
Native American	0.0%	0.1%
Male	9.9%	4.8%
Female	90.1%	75.2%

District teachers have an average teaching experience of 15.0 years, which is consistent with state teachers. At School B, 63.9% hold a Bachelor's degree and 36.1% possess a Master's degree or above.

Table 14

School B: Teacher Characteristics

	District	Type [1]	Size [2]	State
Average Teaching Experience	15.0 Yrs.	14.1 Yrs.	14.1 Yrs.	15.0 Yrs.
Teachers – Bachelor's Degree	63.9%	54.6%	50.5%	53.5%
Teachers – Master's and Above	36.1%	45.4%	49.5%	46.3%

[1] Type refers to elementary districts.

[2] Size refers to enrollment (1745+ students).

Teacher salaries for District B, when compared to the state average and districts of similar type and size are below average. When comparing the average administrator salary, it is above figures reported for both similar districts and the state average. The average administrator salary is 100% higher than the average teaching salary in District B.

Table 15

School B: Teacher Administrator Salaries

	District	Type (1)	Size (2)	State
Average Teacher Salary	$40,296	$41,883	$43,571	$43,806
Average Administrator Salary	$80,184	$74,222	$75,787	$73,423

In addition to 30 classrooms, the middle school houses a multipurpose room (lunchroom), two gyms, a library media center and additional classrooms/labs for teaching art, music, band, consumer science, computers, health, and foreign language. The middle school facility also features an industrial arts workshop that has been updated to include capabilities for computer graphics and technology education.

School B incorporates departmentalized scheduling and students are grouped heterogeneously with the exception of gifted classes in math, language arts, social studies, and science. Each grade level is organized into two core teams, each consisting of approximately 125 students and 5 teachers instructing in the areas of math, science, social studies, language arts (reading), and language usage (writing). Core classes are taught 42 minutes daily. One encore team of teachers provides 42 minute, daily classes for six weeks of instruction to students at all three grade levels in the areas of art, music, computers, consumer science, technology education, and foreign language exploratory (FLEX). Physical education is provided daily for all students and incorporates a six-week health unit. Library and study skills are taught with the assistance of the library media specialist when the curriculum standards require it.

A Title I Reading program funded by a federal grant services 25-30 students whose reading levels indicate the need for more individualized instruction. The at-risk students serviced by this program are those with average intelligence, but with reading levels 1 1/2 years or more below grade level (D. Argeropolos, personal communication, June 18, 1999).

Limited English proficiency students are those found to be eligible for bilingual education, and account for 6.9% of the student population. Students with limited English

proficiency skills are instructed by certified teachers in both integrated (math and science) and pullout settings (language arts, language usage, and social studies). District averages of limited English proficiency students are 4.3% higher than state averages, and these figures are expected to continue increasing in the near future (Analysis of Existing Conditions, 1997).

Table 16

School B: Limited English Proficiency Students

School B	District	State
6.9%	10.6%	6.3%

Students with learning disabilities are serviced in an integrated setting with instruction provided by a resource teacher. According to state requirements, each learning disabled student has an individual education plan. To meet these students' educational needs, teachers follow instructions outlined in these plans.

In School B, 25% of the sixth grade students and 29% of the eighth grade students do not meet state goals in the area of reading as evidenced by their performance on the Illinois State IGAP test. Since the state does not assess seventh grade students in the area of reading, scores for this grade are not available.

Table 17

IGAP State Reading Performance Standards

	School	District	State
Grade 6			
Do not meet state goals	25%	25%	30%
Meets goals	58%	58%	49%
Exceeds goals	17%	17%	21%
Grade 8			
Do not meet state goals	29%	29%	30%
Meets goals	59	59	53
Exceeds goals	13	13	17

Middle school programs and instruction are provided through utilizing a combination of local, state, and federal funds. In the district, the instructional expenditure per pupil of $3,274 is less than the state's average of $3,747. The district's overall operating expenditure per pupil is $5,479, which is lower than the state's expenditure of $6,281. Budget funds dispersed include 47.9% for instruction, 4.5% for general administration, 27.1% for supporting services, and 20.6% for other expenditures. The district spends approximately 5% less on support services than the state averages. Almost 63% of the funds are obtained from property taxes, and since the district is located in a county surrounding a major city, it is subject to the "tax cap" legislation as it applies to property taxes. This legislation limits increases in taxes for residents and forces a

referendum vote for higher amounts than the cap allows (1998 School Report Card), (Technological Visions II - FY99 Update, publication of School District B).

School B's district, organized in 1863, has one primary school with two campuses which serves all pre-kindergarten through third grade students, one intermediate grade level center serving grades four and five, and a middle school serving grades six, seven, and eight. Current district enrollment is 2,157 students (1998 School Report Card). In addition to the regular education programs, all of the district schools provide special education, at-risk reading and math, bilingual education, physical education, art, and music classes. Parent teacher organizations are an important part of each of the schools as they are involved in fundraising and service activities.

Community B

School B's district is located in a suburban village in a county approximately twenty-five miles west of a large midwestern city. The village, incorporated in 1959, has a current population of 30,184 residents. This population count represents a 21.4% increase since 1980 figures were taken. Growth is projected to continue with an expected population of 34,000 by the year 2010. The median age of the village population is under the age of 28, and the median adult age is 32.2; this is a young, family-oriented community. Average annual household income is $59,646 (Chicago Tribune Homes: Homes Website, 1999).

The village is a community of homeowners with 70% of its units owner-occupied. The district is primarily single family in character with some multifamily housing. Commerce includes many small and family-operated businesses. Examples of these businesses are a local

grocery chain, bank, florist, funeral home, and fast food restaurants. At this point in time, the areas of the village surrounding the school have little industry although room for expansion is available. Within its borders, the village also boasts 20 parks, numerous shopping centers, a large aquatic park, a hospital, and a golf course. The town's library features a homework center housing four new word processing computers available to students. Access to the Internet/World Wide Web and reference tools also exists.

The community's police department has a staff of 55 sworn officers and 24 support personnel in three divisions: patrol, investigations, and support services. Residents and police department personnel work together in numerous community-based programs to solve problems and reduce crime. School programs presented by the Community Oriented Policing Unit, part of the Investigation Division, include the Drug Abuse Resistance Education (DARE) program and the Gang Resistance Education and Training (GREAT) program. Most recent figures available for crime committed in the village are reported in the following table (Community Directory, 1999).

Table 18

Community B: Crimes Per 100,000 Residents

Category	Year	Village	State
Violent crime	1997	106	878
	1996	201	918
Property Crime	1997	2,605	4,368
	1996	2,685	4,.477
Total	1997	2,711	5,246
	1996	2,886	5,395

Two elementary districts, one private elementary school, and one high school district serve the village's residents. The district serves a slight majority of White (66.7%) residential community, but has representation from most other ethnic backgrounds: Asian/Pacific Islander (19.9%), Hispanic (9.7%), and Black (3.7%). The growing diversity of its ethnic and racial composition has impacted district and community resources, government and services in recent years. An example at the district level is the high number of limited English proficient students when compared to the state average: 10.6% of the district's students are limited English proficient, while only 6.3% of the students in the state are limited English proficient. This trend is expected to continue for the next five years (Analysis of Existing Conditions, 1997).

The community has long supported its schools. Twice, the electorate has voted for tax rate increases during the last ten years, and yet the district operating expenditure is still almost

$1000 below state average. As evidenced by the district technology plan, local efforts to support education go well beyond the voting booth. Most of the district's initial computer equipment was obtained from fund raising activities and direct donations from members of the community.

Part of the district's Comprehensive Education Plan is to create a "global classroom", one where students see things through the eyes and minds of others and realize that although individuals and groups may see things differently, they also have common needs and wants. This global classroom will mirror the diversity of the district's student population. Other goals of the district's Comprehensive Education Plan are to lead the transition from traditional teaching strategies to those needed for the "information age", remove obstacles associated with students' different needs, and to seek financial sources to fund programs needed for all students to succeed (Technological Visions II - FY99 Update).

School C

School C is a Catholic coeducational high school serving grades nine through twelve, and is an accredited member of the North Central Association of Colleges and Secondary Schools, and is recognized by the Illinois Board of Education and The National Catholic Education Association.

Students who attend this school come from a variety of educational experiences and backgrounds. According to the 1998-1999 Annual School Report Card, the student body consists of 689 students; 82.9% Catholic and 17.1 % Non-Catholic. The percentage of students graduating from non-Catholic junior high schools is 50.4%. Incoming freshmen represent seven

county Catholic schools, twenty public junior high schools, two Lutheran elementary schools, and one Montessori school.

The Chicago Tribune Home: Schools Website (1999) indicates that the student body of School C is significantly less ethnically diverse than the local public high school. This information is displayed in Table 19.

Table 19

School C Student Ethnicity

	School C	Local	State
White	96.3%	86.1%	62.6%
Hispanic	2.5%	11.6%	13.3%
Black	0%	0.9%	20.8%
Asian	1.2%	1.3%	3.2%
Native American	0%	0.1%	0.2%

The percentage of non-White students at School is 3.7 in contrast to 13.9 at the local public school (1998-1999 Annual School Report Card). A possible cause for the low percentage of non-White students at School C is the cost of tuition. While there is not a significant difference in the percentage of Asians, African Americans, and Native Americans at both schools, there is a 9.1% difference in the number of Hispanics who attend the local public school compared to School C.

When examining the attendance, dropout, and mobility rates, only the attendance rates are similar. The dropout rate at school C is almost non-existent in comparison to the local and state figures. A discrepancy exists between the mobility rates of School C compared to the local public high school and the state figures. A difference of 5.6% exists when comparing the figures of School C to the mobility rates of the local school and 5.0% at the state level.

Table 20

School C: Attendance, Mobility and Dropout Rates

	School C	Local	State
Attendance	93.4%	94.4%	93.9%
Mobility Rate	1.19%	6.8%	6.2%
Dropout Rate	0.7%	14.7%	18.2%

According to the 1998-1999 Annual Student Report Card, School C has a lower pupil/teacher ratio than those of the local public high school. There have been several attempts to pass referendums for construction of a new public high school facility to help reduce their large class sizes. However, up to this point, each referendum has been vetoed.

Table 21

School C: Pupil/Teacher Ratio

	School C	Local	State
Pupil/Teacher Ratio	17.2 to 1	20.4 to 1	18.5 to 1

The average teacher salary at School C is $28,825, which is $12,301 less than the average teacher salary at the local public high school. School C salary figures are also $14,981 less than the state average (Chicago Tribune Homes: Schools Website, 1999).

Table 22

School C: Average teacher Salary

	School C	Local	State
Salary	$28,825	$41,126	$43,806

To help defray some of the operating expenses, School C conducts several fundraising events. The Parents' Club sponsors two very successful all night bingo events and the Boosters' Club sponsors a golf outing and two auctions that also raise a considerable amount of money. Donations of equipment as well as money help keep the costs at this school as low as possible.

School C has a faculty of 41 teachers, a principal who is responsible for the day-to-day operations of the school, and two assistant principals who are responsible for discipline, student activities, and curriculum. As seen in Table 23, 39.02% of the faculty at School C have earned a Bachelor's degree and 60.98% have completed a Masters degree or higher (R. Sullivan, personal communication, March 24, 1999). These percentages are considerably higher in comparison to the local and state figures.

Table 23

School C: Teacher Characteristics

	School C	Local	State
Years of experience	13.2	13.8	15.2
Bachelors Degree	39.02%	55.2%	53.5%
Masters Degree or Higher	60.98%	44.8%	46.3%

The faculty at School C is 100% White, and since 96.3% of the students are also White, it is clear that there is little ethnic diversity at this school. The statistics in Table 24 indicate a significant difference between the faculty ethnicity percentages of School C compared to the state figures (Chicago Tribune Homes: Schools Website, 1999).

Table 24

School C: Teacher Racial/Gender

Race	School C	State
White	100%	84.8%
Black	0%	11.3%
Hispanic	0%	3.1%
Asian	0%	0.7%

In 1994, School C reports a 52% enrollment increase from 460 students in 1994, to 689 in 1998. The projected enrollment for 1999 is 725 students (R. Sullivan, personal communication, March 24, 1999). The original physical plant of School C is 40 years old as it was constructed in 1959. In 1995, as a result of projected enrollment increases, money was raised through a capital campaign to start expansion construction. Ten new classrooms, a new auditorium, and a gymnasium were added. An addition was built for the cafeteria, classrooms were remodeled, equipment in the science labs was updated, a commons area was built, and the parking lots were expanded. The cost of this project was $3 million. Since February 1999, School C has been engaged in a $1.75 million capital campaign to acquire the necessary funds to purchase an additional 27.5 acres of land near the school. Athletic and activity practice fields will be developed as well as competition facilities for tennis, soccer, softball, baseball and football. The physical education department will also make use of these new facilities. Construction on this project is scheduled to begin in September of 1999. Donations and pledges for both of these campaigns are being solicited from parents, faculty and staff, alumni, local businesses, and friends of the school (Fields of Dreams: Completing the Vision Brochure, 1999).

The annual expenditure per student at School C is $3,700, which compares to the state expenditure of $6,281 and $5,419 at the local level. A difference of almost 50% exists when comparing School C to the state and a 25% difference when comparing School C to the local public school.

Table 25

School C: Expenditure Per Student

	School C	Local	State
Spending per Pupil	$3,769	$5,419	$6,281

School C receives a subsidy from the county parishes of $1,019 for each student whose family belongs to a participating parish. A parish is a:

> Local church community composed of the members or constituents, or the ecclesiastical unit of area committed to one pastor (Merriam-Webster Collegiate Dictionary Website, 1994 p.xx).

The actual tuition for students whose families belong to a participating county parish is $3,360. The tuition cost for students whose families are not members of a participating parish is $4,080 (Annual Report Card, 1998). To assist and encourage multi-student families to send all high school aged students to the school, there are tuition reductions for the second and third student from the same family, and the fourth student from the same family is not any tuition.

The school year at School C and the public high school consist of two semesters with two quarters that are nine weeks in length. Each school day consists of seven class periods that are 47 minutes in length.

Students at School C are required to successfully complete 23 credits for graduation. All incoming freshmen are required to take a high school placement exam prior to being accepted to this school. This test is utilized for freshmen placement purposes only. Based on the philosophy

of School C, all students, regardless of their test scores, are allowed the opportunity to attend this school. Test results are used to place students in English, math and science classes.

In the latest class for which figures are available, there are 176 graduating seniors. Of these graduates, 97% are entering either a two or four year college or university, 1% are entering the military, 1% are entering the workforce and 1% are enrolling in technological training. Graduates of this same class report composite American College Test (ACT) scores of 25.7, which is 2.8 points higher than local and state scores (Chicago Tribune Homes: School Website. 1999).

Table 26

School C: American College Tests (ACT)

	School C	Local	State
1999 ACT Scores	25.7	23.4	22.9

Community C

School C is located in a city between two larger cities in the Midwest. The area that surrounds the city would be considered rural. According to information in The Chicago Tribune Homes: Woodstock Website (1999), this city is not considered a bedroom community for downtown commuters, but an area that attracts young families who prefer a rural setting and are willing to drive to nearby suburbs rather than the two larger cities mentioned earlier. School C is

the only Catholic high school in the city or county and is affiliated with a Catholic diocese, which includes 17 parishes.

While the racial ethnicity figures at the local public high school are similar to the city where it is located, there is a considerable variance between those figures and the percentages at School C.

Table 27

Community C: Population Ethnicity

Race	Community C
Hispanic	7.4%
Black	0.6%
White	90.3%
Other	1.7%

This same source states that this area is the fastest growing area in the state. The population of this city is 17,457 with a projected number of 19,748 in 2003, an increase of 12%. Affordable real estate, a relatively low crime rate compared to some urban/suburban areas, and the desire to live in a rural setting are some of the reasons attributed to the recent increase.

Although the median home value is $105,000, there are many upscale homes in outlying areas that include more acreage and cost $300,000 - $500,000. The current number of households in this city is 6,584, with a prediction of 7,312 by 2003, resulting in an 11% increase in 5 years. The Community Profile, produced in 1998 by the city where School C is located, lists

the median age of the population as 33.6 years. Married couples with families comprise 80.31% of the households with an average household income of $53,486. As seen in Table 28, the crime rate in this city is lower than the state figures, however, an increase of 21.4% occurred between 1996 and 1997. According to the Chicago Tribune Homes: Woodstock Profile Website (1999), these figures are 2.7% higher than the state figures for that same time period .

Table 28

Community C: Crimes per 100,000 Residents

Category	Year	Local	State
Property Crime	1997	4,055	4,368
	1996	3,307	4,477
Total	1997	4,555	5,246
	1996	3,585	5,395

The largest employers in this city include the county and municipal buildings, a local hospital, and the public school district. Although most companies are small, this city does have some industry of its own: tool and die manufacturers, printing companies, and plastic makers. An international high tech computer/communication production plant built in 1994 provides 1,400 jobs to local residents.

The population increase in communities near School C is one of the reasons for the significant increase in the enrollment at School C. The redefining of boundary lines by a local

public high school district has resulted in families being required to send their children across town to a school located in a less affluent area. According to parents who attended an open house at School C in January 1999, parents with transferring students expressed concern about gang problems, drug and alcohol use, and incidences of violence at the school. Many of these parents considered alternatives, including Catholic and other private schools in the area (J. Storm, parent/teacher, personal communication, February 1999). Another current concern at another local public school district is the possibility of changing to double sessions, when upperclassmen attend classes in the morning and underclassmen attend classes in the afternoon as a method to ease overcrowded conditions. Parental concerns, class time schedules, transportation safety, quality of instruction, and participation in interscholastic and athletic events are considerations that go into the decisions in transferring their children to School C (D. Proffitt, parent/teacher, personal communication, February 1999).

Regional and National Context of the Problem

One of the most important but neglected general goals of education is transfer of learning. According to Fogarty (1992), transfer of learning occurs when students learn something in one context and apply it in another significantly different context. Lack of transfer becomes a significant problem for educators as the necessary transfer often does not occur for students and meaningful learning does not take place (Perkins, 1992: Salomon, 1992). Concern at the state and national level has been generated among educators regarding this problem.

Naffziger, Steele, and Varner (1998), found that a lack of student empowerment permitted students to be passive learners. Differences experienced in the classroom between

learners and lessons are frequently due to the learners' inability to see the relevance, significance or value (Johnston, 1998). Although taken for granted in many classroom settings, students do not always make appropriate transfer of what they are learning. For many topics and skills, the transfer does not occur. Just as students often do not transfer content knowledge, they often do not transfer ways of thinking that they have learned in a particular class (Swartz,1987). They have difficulty applying the knowledge to pertinent daily activities. For example, students learn how to perform basic mathematical operations but have difficulty solving daily life problems such as giving change or calculating sale percentages on purchases. Students also may learn about historical events, yet are unable to connect them to current social issues of the day.

Educators are in a position to assist students in becoming more actively engaged in the transfer of their learning, but first they must visualize how ideas connect across fields and to everyday life. Teachers must know what students believe about themselves, what's important to them, and what tasks are likely to provide them with enough success to motivate them to work hard to learn.

Although many students are not succeeding in the traditional classroom, every student can learn. In addition, the individuals' ability to apply the knowledge gained to solve real life problems is significant since from birth to death, every aspect of human development is dependent on how we learn.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to document the extent of the lack of transfer of learning to real life experiences, three types of data collection were utilized. The targeted students completed a student survey, (Appendices A, B, C) a learning inventory reflection, (Appendices G, H, I) and a pretest. These assessments were given during the first two weeks of school. Parents of the second grade students also completed a Multiple Intelligence Developmental Assessment Survey (MIDAS), (Appendix J) to provide information about the students' learning preferences, styles, and abilities. Sixth grade and tenth grade students completed this MIDAS survey independently.

At School A, the results of the student survey revealed varied interests. The largest segment of students, 47%, indicated an interest in the verbal/linguistic intelligence by selecting activities involving reading and writing. In the next group, 20% of the students selected drawing or the visual/spatial intelligence. The logical/mathematical and musical/rhythmic intelligences were chosen by 13% of the students.respectively. Finally, 7% of the students selected discussion, indicating interest in the interpersonal intelligence. Figure 1 visually displays the results of the question, "How do you like to learn about things?". This survey was given to the targeted students at School A.

School A Student Survey

How do you like to learn about things?

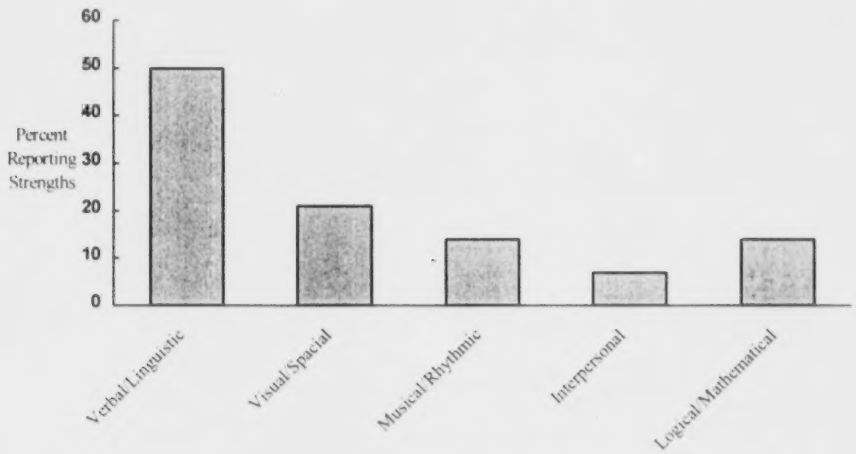

Figure 1. Results of Student Survey given to the targeted students at School A, during the fall of 1999.

Students were also asked to reflect on their strengths, interests, and after school activities that they enjoy. The largest group of students, 67%, felt their major strength was in sports, or the bodily/kinesthetic intelligence. The logical/mathematical intelligence was indicated by 13% of the students who felt they were good at Nintendo, and computer games. Dancing, identified by the musical/rhythmic intelligence, was selected by 7% of the students. One student, 7%, reported that he engaged his naturalist intelligence by catching bugs. Figures 2 and 3 display the results of the learning inventory reflection.

School A Learning Inventory Reflection

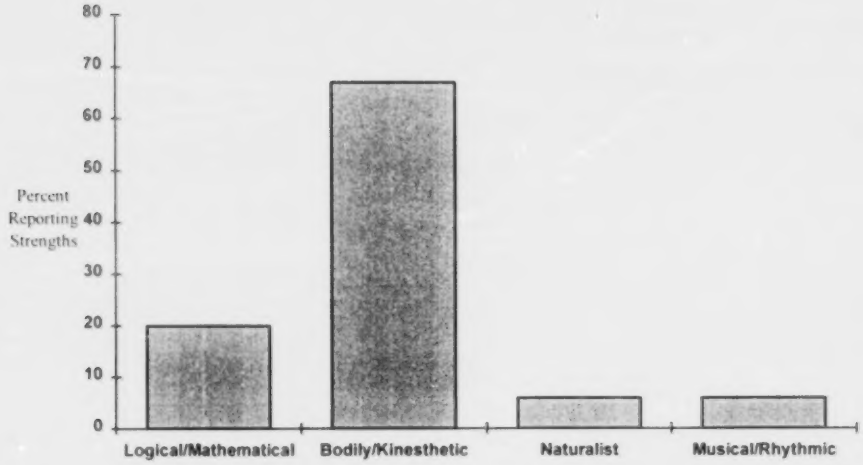

Figure 2. Results of Question One "What are you best at doing?" (Major strengths)

The second question inquired about interest and after school activities. The logical/mathematical intelligence was chosen by 27% of the students whose choices were Nintendo and computer club. The bodily/kinesthetic intelligence or sports activities were chosen by 13% of the students. Playing alone or attending church, indicating the intrapersonal intelligence, was selected by 27% of the students. The interpersonal intelligence was indicated by 13% of the students who enjoy playing with friends. One student, 7%, indicated the visual/spatial intelligence with "going to the movies". Students indicating preference for the verbal/linguistic intelligence by responding with "homework" and "talking" were tallied at 13%.

School A Learning Inventory Reflection

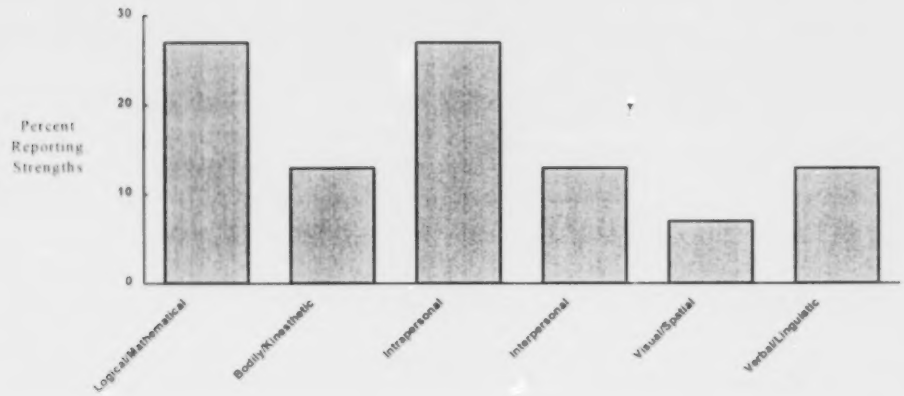

Figure 3. Results of Question Two "Tell me about your interests and after-school activities."

The fifteen second grade students at School A were given a diagnostic reading test called Standardized Test for Assessment of Reading (S.T.A.R.). (Appendix G). Over half, or 53%, were found to be below grade level and will require continual monitoring throughout the year. Of the 53%, of the students,, 47% tested at pre-primer level, considered the end of kindergarten, and 7% tested at the primer level or the first two to three months of first grade. The remaining 47% of the students tested at or above grade level. Figure four shows the results of the diagnostic pretest.

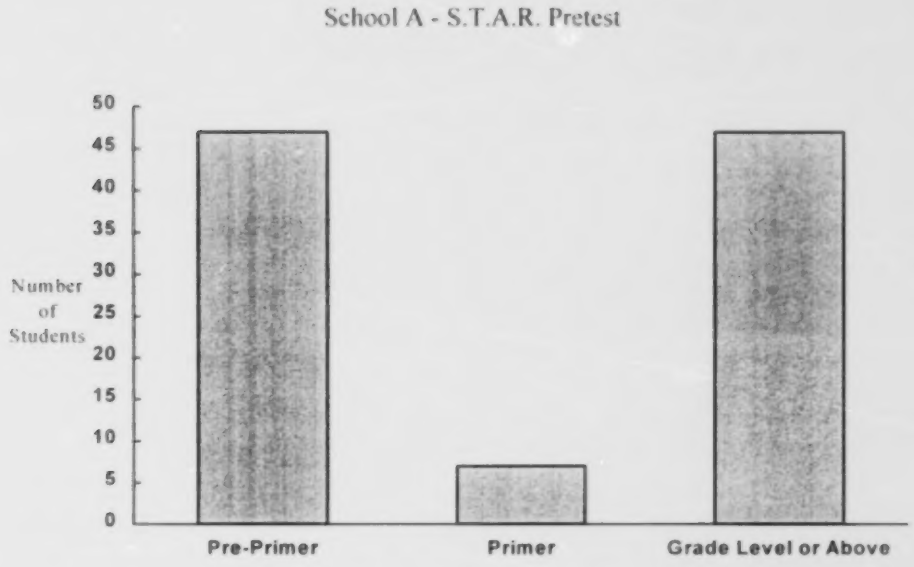

Figure 4. Results of the S.T.A.R. pretest.

The targeted class of 21 sixth grade students at School B completed a student survey detailing their major strengths, interests and after school activities. The major percentage, 71%, reported bodily/kinesthetic exercises such as gymnastics, horseback riding, basketball, football, and bicycle riding as their major strengths. Of students surveyed, 24% stated they found logical/mathematical interests such as problem solving, puzzles, and video games as a strength while an identical percentage responded that they did well with musical/rhythmic activities such as singing, dancing, and listening to music. Verbal/linguistic activities including reading, spelling, and writing stories and visual/spatial activities such as art, watching television, videos and going to the theater were reported by 19% of the targeted students. Naturalist interests such as taking walks and caring for pets were reported as a strength by 14% of the students and 5% of the class felt interpersonal skills were a strength.

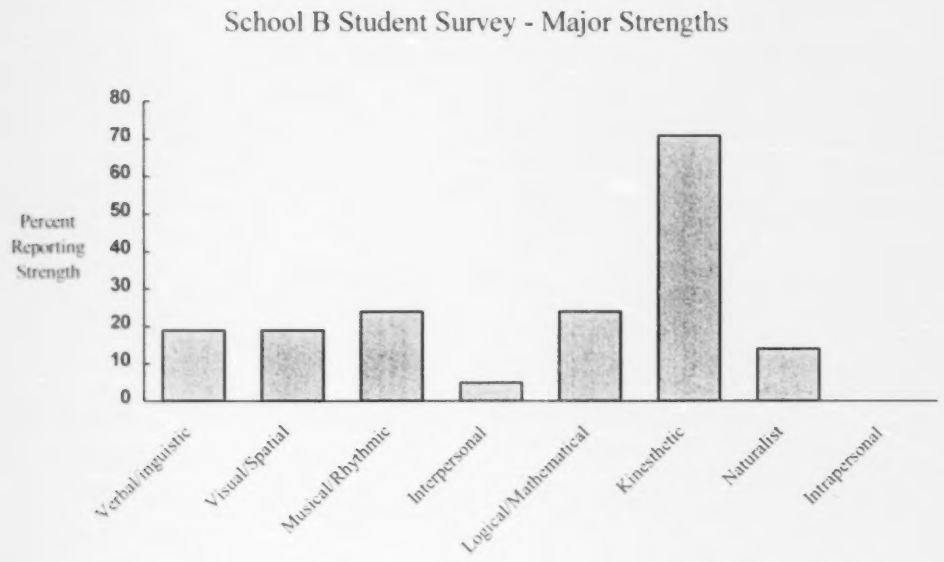

Figure 5. Results of School B Student Survey

When asked about their after school interests and activities, 76% responded that they enjoyed bodily/kinesthetic activities such as volleyball, baton twirling, karate, swimming, riding bicycles, and rollerblading. Interpersonal interests that included "hanging out" or playing with friends, trading baseball or "Pokemon" cards, and attending club meetings were reported by 43% of the sixth grade students. Identical percentages, 29%, were stated as responses for naturalist activities such as fishing, taking walks, playing with pets, and visual/spatial interests that included computers, drawing and art/craft projects. Of the students surveyed, 19% found enjoyable musical/rhythmic activities that included listening to music, dancing, and playing the drums. A smaller percentage, 14%, responded that logical/mathematical interests that included chess and computer games were enjoyable. Identical participation, 14%, was noted for verbal-/inguistic activities such as writing articles for the school newspaper and reading. Also reported

by 14% of the targeted students was an interest in intrapersonal activities such as collecting "Sailor Moon" toys or "Pokemon" cards.

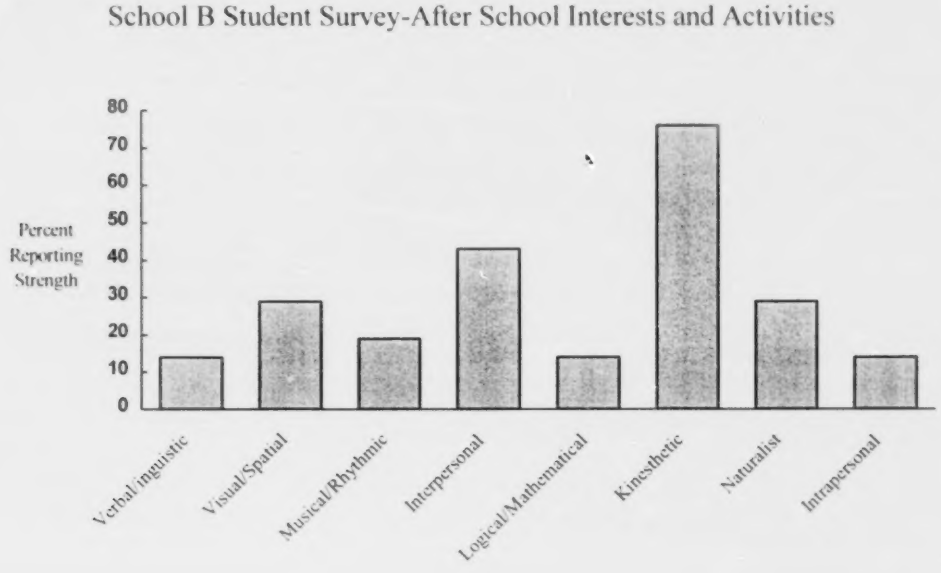

Figure 6. School B Results of interests and after school activities.

Students in the targeted sixth grade class then completed a Learning Inventory Reflection that responded to the query:

> How do you like to learn about things? For example, think about reading, drawing, acting things out, discussing, journal writing, and poetry. Some other ways of learning also include music (rhythm, listening, playing instruments), art (drawing, sculpting, collage), math (calculating, measuring, solving puzzles), building activities (making things from different materials), movement activities (acting, dancing, juggling), working with others or working alone and thinking about things.

The majority, 57%, of the students replied that they enjoyed using bodily/kinesthetic activities in their quest for learning new ideas. Several students stated the easiest way to perform a new task was to learn it in a physical way or with hands-on activities using manipulatives. Others responded that movement activities like acting were especially helpful. Another large percentage of students, 48%, answered that interpersonal activities such as working with a partner or working together in cooperative groups helped them meet success in learning new material. Visual/spatial interests that included teacher demonstrations, drawings, or art were listed as beneficial by 43% of the students. Success in learning came for 33% of the students through logical/mathematical activities such as problem solving, measuring, and figuring out puzzles and mazes. A smaller percentage, 19%, of the sixth graders reported that they enjoyed learning best through musical/rhythmic methods. Preferred activities centered on an intrigue with playing musical instruments and use of background music when doing class or homework assignments. A verbal/linguistic way of learning was preferred by 14% of the students who stated they learned best through reading, discussing, and discovering the crux of the problem in stories. The smallest percentage, 10%, of the students reported that they met success through working alone. One child, 5%, of the targeted class, also stated that she learned best in any way she was having fun. Of those surveyed, no one chose naturalist activities as an interesting or enjoyable way to learn.

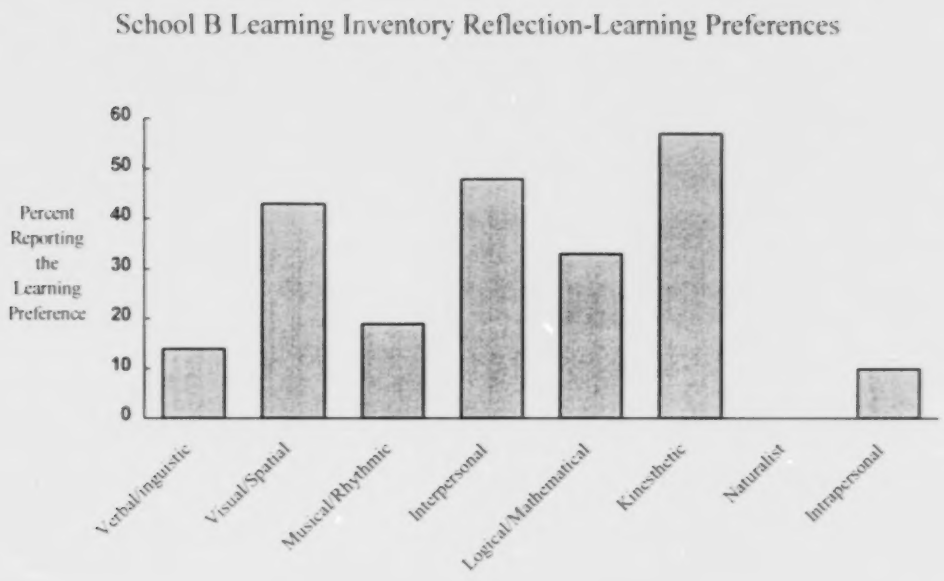

Figure 7. School B Results of the learning inventory reflection.

A pre-intervention assessment on geometry was administered to the targeted class of sixth grade math students. Two thirds, 67%, responded to having studied geometry previously, while 33% of the students reported that they had studied a limited amount of geometry. The pretest gathered information in four major categories: knowledge of situations requiring use of perimeter and area, knowledge of situations requiring use of surface area and volume, application of formulas and solutions of problems, and recognition of how geometry is helpful in daily living activities.

When asked to demonstrate the need for using perimeter and area in life situations, 57% of the students identified the need correctly with 100% accuracy, while 24% responded with 80% accuracy. A smaller percentage, 14%, correctly recognized the use of perimeter and area 60% of the time, and 5% of the targeted class responded with 20% accuracy.

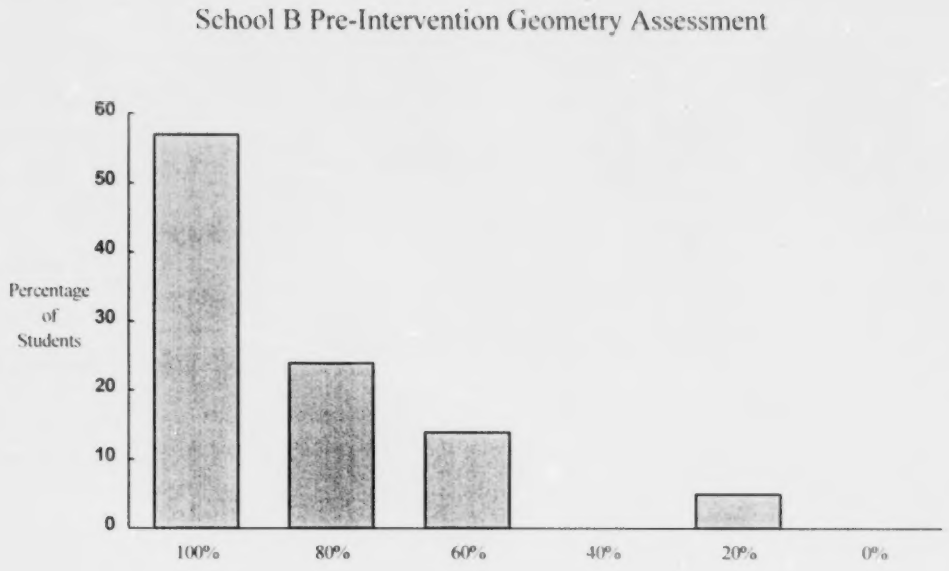

Figure 8. School B Results of accuracy of knowledge of situations for the use of perimeter and area

Students had greater difficulty correctly assessing the need to use surface area and volume in applied situations. A smaller number, 33%, of the students were able to identify its use with 100% accuracy. Students responding with 80% accuracy represented 14% of the sixth grade class and 33% were able to identify surface area and volume use 60% of the time. Responses showed an identical percentage, 5%, for students reaching 40% and 20% accuracy, and 10% of the class could not identify the correct use of surface area and volume with any accuracy.

School B Pre-Intervention Geometry Assessment

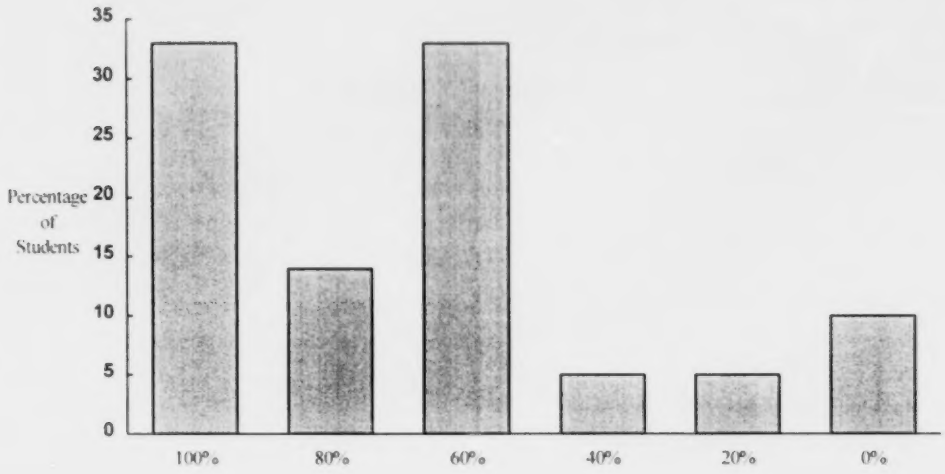

Figure 9. School B Results of accuracy of knowledge of situations for the use of surface area and volume

Students were asked to complete problems that were accompanied by diagrams showing dimensions for length, width, and height by applying the correct formulas for its solution. None of the targeted students were able to successfully solve the four problems given with 100% or 75% accuracy. A few students representing 14% of the class responded with 50% accuracy. The largest percentage of the class, 62%, correctly solved the problems with 25% accuracy, while 24% of the sixth graders could not solve any of the problems.

School B Pre-Intervention Geometry Assessment

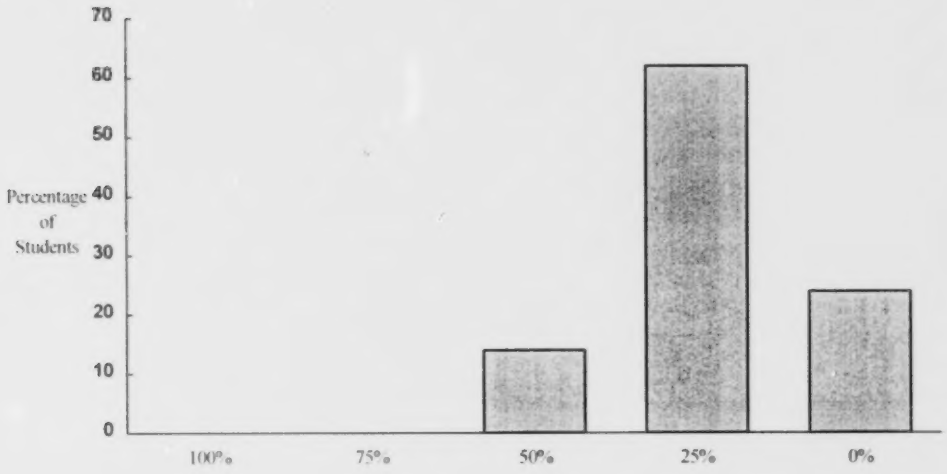

Figure 10. School B Results of accuracy of knowledge of problem solutions.

Students were then asked to explain how knowing geometry could be beneficial to them. A small percentage of the students, 10%, were able to correctly identify situations where using geometry would be helpful. Correct responses included measuring a living room for new carpeting and selecting the appropriate size cake pan dependent on the volume of the cake baked. Appropriate responses but with only sketchy details provided were supplied by 43% of the students. Responses included measuring a backyard fence, building a wooden birdhouse, planting in a garden, or checking to see if something fit into a box. Exactly how geometry could be used in these situations was not explained. Unclear or no correct responses were cited by an additional 47% of the class. Incorrect responses tallied included "using geometry when you are going somewhere to know how far it is", and "it can be helpful to me by helping me pass".

When asked about their strengths as a person, the majority of students at School C, 79%, felt that their major strengths involved being a good friend. Interpersonal attributes that were noted included being understanding and empathetic, and having the ability to get along with a variety of people. Participation in team sports was another area where many students felt they excelled. The results of the survey also revealed that 14% of the class felt that their strengths were verbal/linguistic in nature such as talking on the telephone and 14% chose bodily/kinesthetic activities such as decorating cakes and participating in a variety of both individual and team sports such as tennis, football, and volleyball. The percentage of responses for mathematical/logical, musical/rhythmic, and visual/spatial was below 1%.

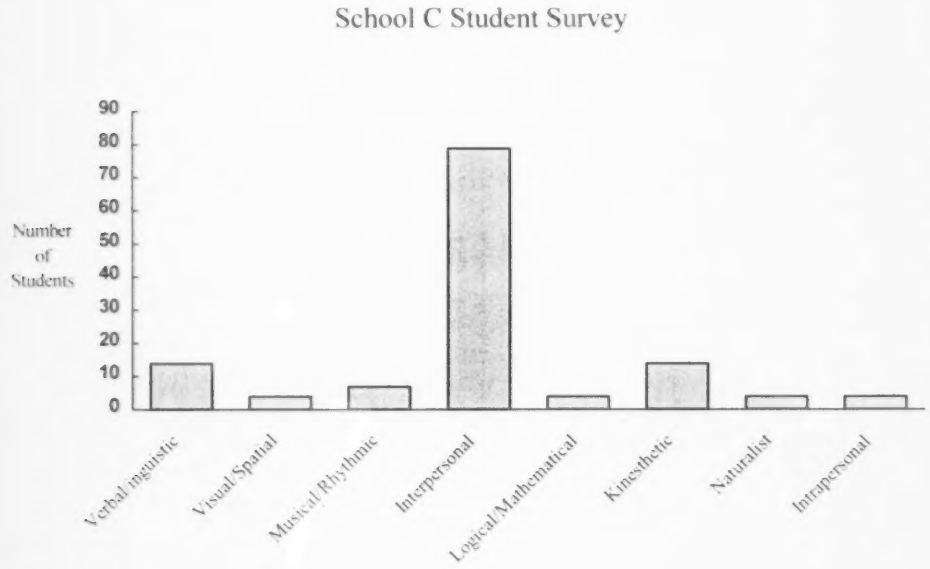

Figure 11. School C Results of Student Survey.

The majority of students, 86%, surveyed at school C preferred bodily/kinesthetic activities when asked about their activities outside of school. Examples of these activities included soccer, skateboarding, roller-blading, and exercising. Interpersonal activities such as activities with friends and participation in sports were preferred by 29%, while 18% chose musical /rhythmic activities such as dance, listening to music and playing a musical instrument. Only 7% of the students were involved in interpersonal activities such as creative writing and drawing and the same percentage were involved in verbal/linguistic activities, which include writing poetry and spending time talking on the telephone. None of the students that were surveyed chose activities that involve the naturalist or mathematical/logical intelligences.

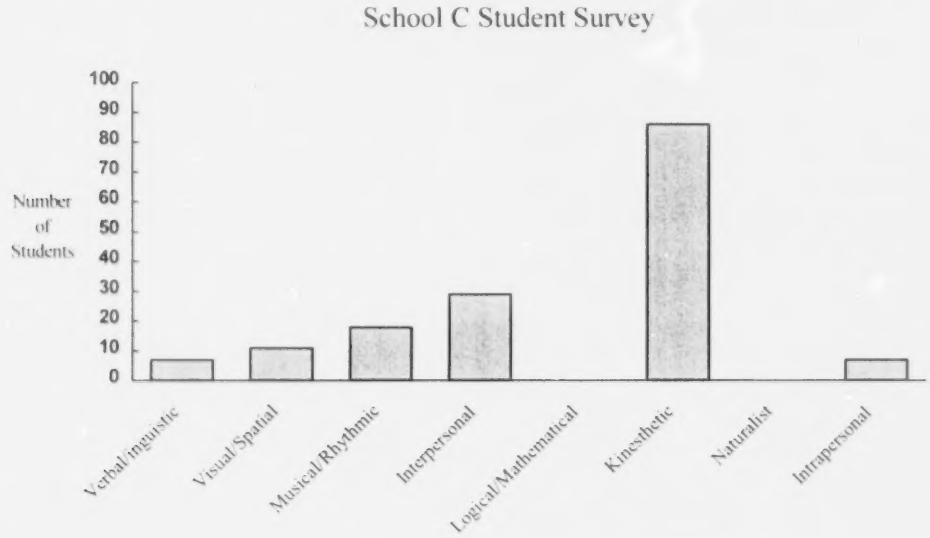

Figure 12. School C Results of Student Survey.

The targeted class of thirty-one tenth grade students at School C completed a student survey detailing their major strengths, interests and after school activities. Students were asked to reflect on how they learn best about things. Slightly more than half of the students, 58%, indicated that they learned most effectively through interpersonal activities such as working in both small and large groups and participation in class discussions while 32% preferred intrapersonal activities such as working alone and journaling. Bodily/kinesthetic activities such as building things and activities involving physical movement were selected by 18% of the students. Only 13% of the student participants felt that they learned best through activities involving verbal/linguistic strategies such as notetaking and outlining new material or through visual/spatial activities that included watching videos in class and assignments that involve drawing. There were no students in this class who chose naturalist or musical/ rhythmic activities as their personal learning preference.

School C Learning Inventory Reflection

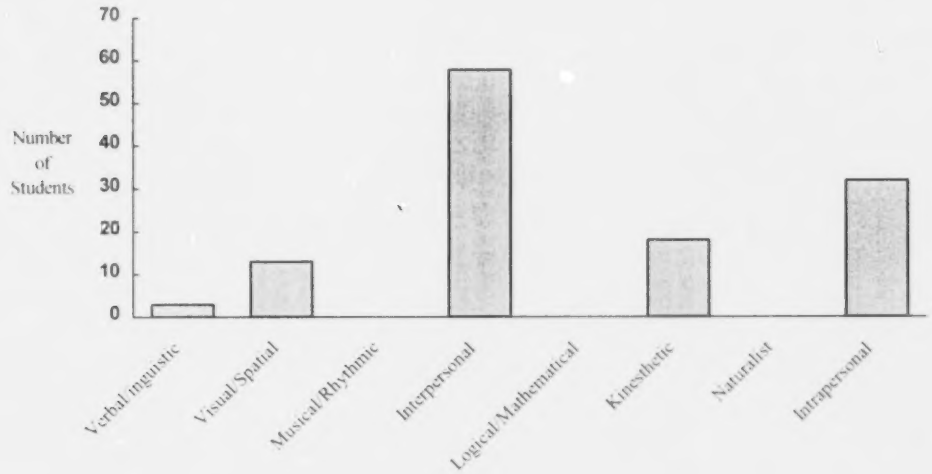

Figure 13. School C Results of Learning Inventory Reflection.

The tenth grade students at School C were given a pretest which involved watching part of a video and answering four questions that required use of their prior knowledge of the subject at the time of the pretest. Question one, "What should be the first thing that should be done in the situation that was observed in the video?". Only 16 % of the students answered the question correctly.

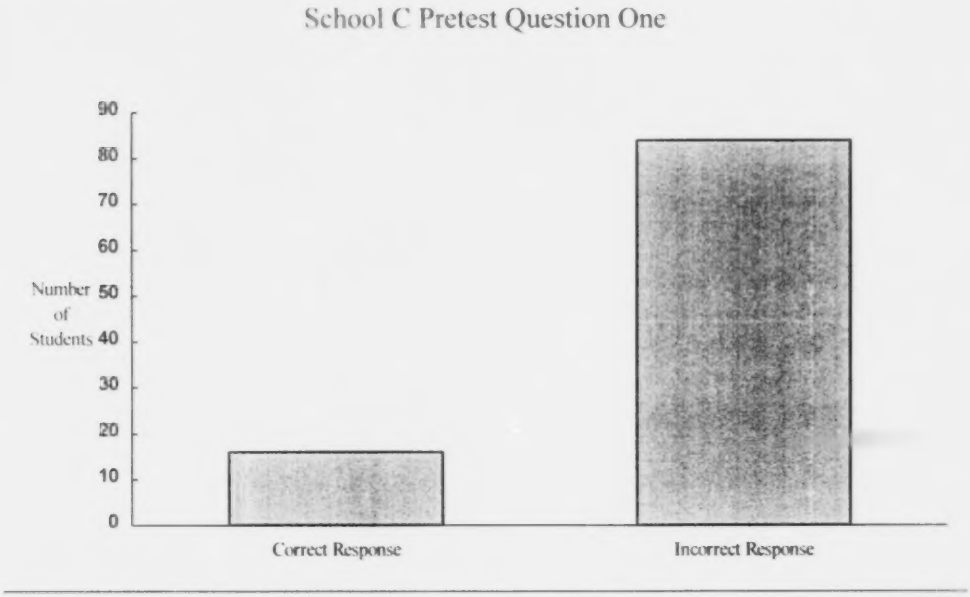

Figure 14. School C Results of Question One

Question two, " With the knowledge that you have right now, list four things that you could do to help and would not require you to touch either victim?" This question was answered completely correct by 26% of the students, 23% had three out of four responses correct, 29% answered half of the question correctly, 16% answered one of the four responses correctly and 6% either left the answer space blank or answered the entire question incorrectly.

School C Pretest Question Two

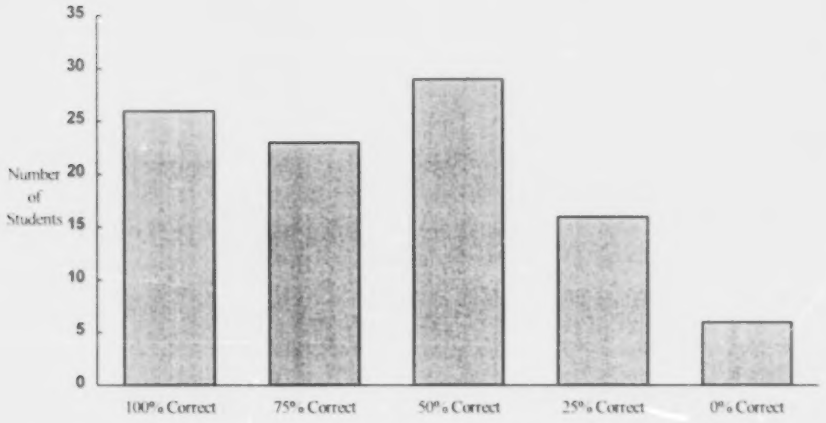

Figure 15. School C Results of Question Two

Question three, "With the knowledge you have right now, name four things that you could do to treat the little girl." Only 6% of the class answered this question completely correct, and 26% of the class answered three out of four responses correctly. While 23% of the students answered half of the responses correctly, 19% answered one response correctly, and 19% either left the answer space blank or had no correct responses to the question.

School C Pretest Question Three

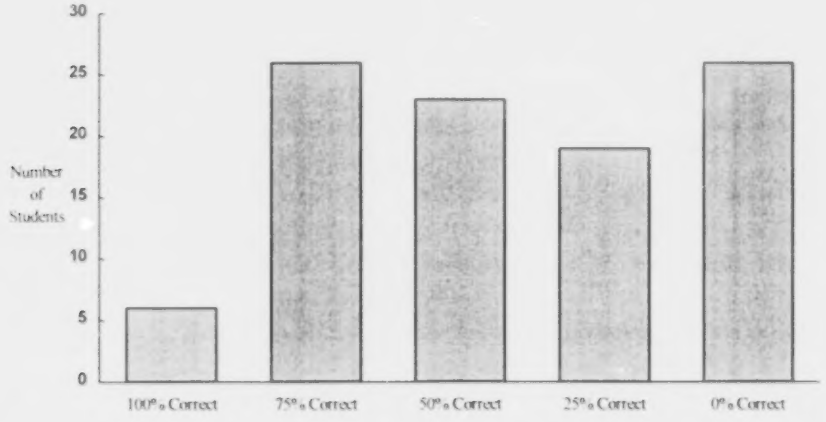

Figure 16. School C Results of Question Three.

Question four, "With the knowledge you have at this time, list four things the you could do to treat the father's wounds?" was answered completely correct by only 6% of the class, while 32 % of the class answered three out of four responses correctly. Of those surveyed, 19% answered half of the question correctly, 19% answered one response correctly, and 19% either left the answer space blank or had no correct responses.

School C Pretest Question Four

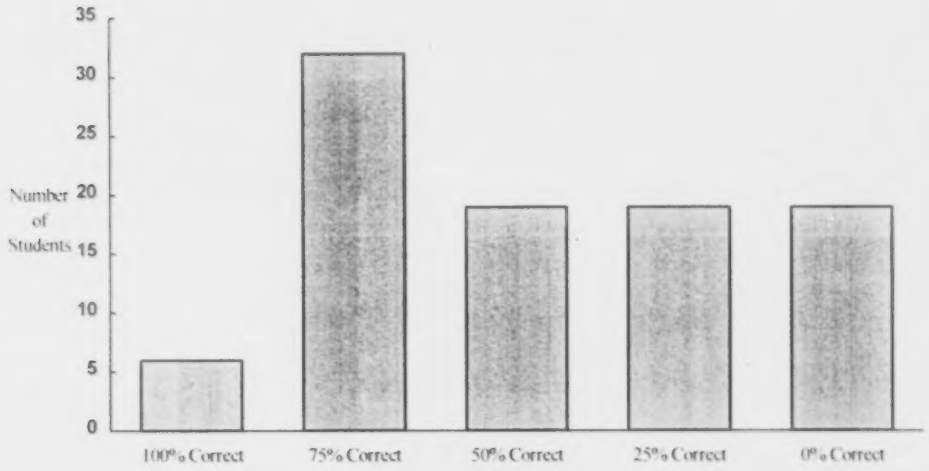

Figure17. School C Results of Question Four.

Probable Causes

The literature suggests several underlying causes for the lack of transfer of learning to real life experiences. The causes identified from the problem setting include changing student demographics and a lack of intrinsic motivation.

According to the U.S. Department of Education (1998), there will be an increasing number of minority students in the nation's classrooms. In the last two decades, racial and ethnic

diversity in the U.S. has increased substantially. Many of these students have difficulty understanding English. The U.S. Department of Education also states that this country is the only wealthy, industrialized country to have nearly one in every five children living in poverty, and the proportion of children living in single parent families has more than doubled since 1970. At this time, 25% of children under the age of 18 live in single parent families. In 1994, Armstrong concluded that:

> Over the past two decades, American education has seen tremendous demographic changes that have created a student population more racially, ethnically, and culturally diverse than ever before. Such diversity presents a great challenge for educators... . (p.159, 161)

Delpit (1995) concurs with these findings and states that:

> Demographic data points to a society becoming increasingly diverse and that diversity is nowhere more evident than in our schools. (p. 66).

At this time, minority students represent a majority in 23 of the 25 largest cities in the nation. Over time, these changes in the composition of students will affect the social context of education and will present unique challenges to our schools to provide all students with equal educational opportunities.

Since transfer of learning is one of the major goals of education, the need to become effective in multicultural and diverse classrooms is critical. Wlodkowski and Ginsberg (1995) assert that our motivation to learn is directly impacted by our emotions, and our emotions are

influenced through our cultural socialization. The influence of language, values, beliefs, customs and behaviors affect every aspect of our lives.

According to Wagner (1993), all students can not relate to a middle class, white curriculum because they have such diverse, ethnic backgrounds. Large numbers of students feel disconnected from almost everything they do in the classroom. Profound changes have occurred among students in the past 25 years. Changes teachers have observed include working with increasingly passive, unmotivated students with diminished attention spans.

Wagner states that adults are often not present to supervise homework time for these children. Parents are often too involved in pursuing personal career and economic goals to properly provide the necessary supervised support for children and help encourage their children to be engaged learners who are able to transfer their learning to daily life. Presently, many students think school is boring and seldom do they find relevance between school learning and their daily lives.

Tomlinson's study, as cited by Hootstein (1994), suggests that many experts in the field of education have identified lack of student motivation as one of the primary causes of low achievement levels. These unmotivated students may survive in the classroom by exerting minimal effort and concentration and even cheating, but these children will have difficulty transferring and applying their knowledge beyond the classroom walls (Newmann, 1989).

Since all students learn and remember differently, they must be exposed to various active learning experiences. Glasgow and Bush (1995), state:

Active learning is the most successful when the instructor considers the learning styles of the students. These active learning styles of learning experiences require students to apply what they are learning.

School A

Over the last decade, School A has seen a change in student demographics. Many families have either both parents working, or are a one parent family. The researcher noticed that work schedules prevented some parents from attending school functions, and overseeing homework. Students at School A come to school lacking prior knowledge of the world around them. Many students have not been introduced to museums, libraries, and books prior to entering kindergarten. The researcher also noticed students coming to school motivated to learn, but since reading and writing are not reinforced in the home many students begin to lose their eagerness to learn.

School B

Changing demographics in the student body at School B may be a probable cause for lack of transfer of learning. District averages of limited English proficiency students are 4.3% higher than the state's averages, and both district and community resources have been impacted by this growing diversity of its ethnic and racial composition. Students are arriving at school with a very limited or no foundation in the English language and less common background experiences on which to hook their new learning. With the many varied educational backgrounds of students, teachers are also observing an increase of at risk children and evidencing a faster exit for students

from the limited English proficiency program at the school than in past years. These factors may all affect the transfer of learning to daily life activities for the students at School B.

School C

One of the probable causes for the lack of transfer of information at School C is the lack of intrinsic motivation on the part of the students. As stated in chapter one, 97% of the students at School C attend college upon graduation from high school. The researcher has noticed that the students at School C are primarily concerned only with letter grades not with the knowledge learned or the ability to use the knowledge in real life situations.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

As stated in chapter 2, today's classrooms seem to be filled with increasingly passive, unmotivated students rather than engaged learners who are able and ready to transfer their learning to daily life. Yet, Newmann (1989) asserts that "Engagement in academic work is the students' psychological investment in learning, comprehending, and mastering knowledge or skills" (p.34) and it is the goal of every classroom teacher to actively engage their students in their learning and the transfer of these skills to everyday life. The purpose of this research is to investigate and explore the possible solutions for the lack of transfer of learning to real life experiences: journaling, cooperative learning, and multiple intelligences. The researchers also expect to determine the effects of interventions on student ability to transfer knowledge.

The challenge for today's educator is to develop a warm, nurturing classroom climate and intriguing lessons that will motivate students to be actively engaged in their learning. Only then will transfer of learning occur and academic growth take place. Dodd (1995) states, "To motivate and engage students, teachers must create a classroom environment in which every student comes to believe 'I count, I care, and I can' " (p. 65). To do so, teachers must develop a teaching relationship with their students. Understanding the students' perspectives is the best way to foster engagement and transfer of learning. Burke (1999) asserts that if learning and

transfer are to occur beyond the classroom, real world contexts are needed. For truly meaningful learning, students need to be able to interpret information and relate it to their own prior knowledge. "Learners should be able to construct meaning for themselves, reflect on the significance of the meaning, and self-assess to determine their own strengths and weaknesses." (p xiv.).

Dodd advocates using journals and logs for the teaching of transfer. Learning is personal and idiosyncratic; journaling helps the teacher see the students as individuals rather than as a total class. By inviting students to share their feelings and opinions, Dodd feels teachers are able to establish positive relationships with them and discover how to personalize assignments in ways that students are actively engaged in their learning so that transfer may occur.

Students will become more self reflective when they are given opportunities to explain their thinking and reasoning. Having students briefly summarize what they have learned or note questions they have is helpful to both the student and the teacher. Teachers can read logs quickly to determine common problems to address in class, to note students needing extra assistance, or to simply let the students know they care about them by writing a personalized comment. Journaling works because every student gets to share what he or she feels, understands, misunderstands, or needs to know. This is clearly a way of having students feel empowered.

Burke (1999) states that journals can help make students more aware of their thought processes and more able to transfer their learning to daily life situations. Students do not automatically apply what is learned in the classroom to their daily lives; teachers must teach for

these connections. Transfer of knowledge plays a key role in metacognition, which is an awareness of thought processes and their use in appropriate situations.

Burke asserts "Teachers can use logs and journals as metacognitive strategies by assessing the reflectiveness of the students' responses, the evidence of transfer to other classes or life outside school, and the students' ability to plan, monitor, and evaluate their own work"(p. 131). In order to transfer concepts, skills or knowledge from one situation to another, students must be aware of them; journaling allows this metacognition and metacognition leads to transfer. Journaling also invites students to connect ideas to prior knowledge and past experience. Students can then relate what's learned to personal experience and carry these new skills into real life activities and situations.

Wasserstein (1995) states that "as educators, we invoke the best thinking to enrich the educational experiences of our students" (p. 41). Students need to ponder and wrestle with real world problems and to have opportunities provided to construct knowledge for them to feel that their work has value. Passive learning does not foster engaged learning. Wasserstein asserts that a key component of the transfer of learning process is student ownership and self-assessment. In self reflecting, students can be asked, "What steps did you take in completing this assignment? What was the hardest part of this activity? What did you learn from completing this assignment?" (p. 43). Student ability to articulate thinking processes is empowering since it provides the opportunity to know one's strength, weaknesses, needs, and abilities. Self reflections through journaling requires teaching, modeling, nurturing, and feedback and is as important as any knowledge acquisition.

Skill and drill learning without the realistic applications needs to be replaced by authentic learning experiences that include journaling for today's students to be successful in the transfer of their learning. As cited by Costa, Bellanca, and Fogarty (1992), Fulwiler concurs with this opinion: "When people write about something, they learn it better. That, in a nutshell, is the idea behind asking students to keep journals" (p. 247).

Just as students need to connect ideas and skills in order to transfer them to other situations, so too must educators. Teachers need to be thoughtful and reflective in reaching their goals also. Fogarty, Perkins, and Barrell (1992), as cited by Burke, (1999), state that educational professionals "need to seek generalizations, look for opportunities to apply prior knowledge, monitor their thinking, and ponder their strategies for approaching problems and tasks" (p. 97). Burke asserts that metacognitive reflection is a prerequisite for transfer. The more educators ponder their practices, discuss their insights with peers, and write about their reactions, the more they will clarify their thoughts and assess their ability to meet their target goals in order to transfer them to their teaching situations. Using a journal helps keep a focus on these goals and enables educators to keep track of student progress.

Thomas Armstrong (1993) also concurs with keeping a journal for personal knowledge. "Modern day explorers of the inner self often find journal keeping to be invaluable in helping them probe the depths of their souls. Although journals are a linguistic medium used by intrapersonally intelligent individuals, they tend to be more a tool for self exploration than a means of literary expression." (p. 138).

In addition to journaling, cooperative learning can be used for the teaching of transfer. Johnson and Johnson (1992) define cooperative learning as the educational use of small groups of students working together to increase each other's learning and to accomplish shared goals. Results of cooperative learning include higher level reasoning skills, new ideas and solutions, and a greater transfer of what is learned from one situation to another situation. Johnson and Johnson further state cooperative learning is also paramount to individualistic learning when long term retention and application of what was learned is expected of a student. It was also observed by Johnson and Johnson that in a cooperative learning situation, students focus both on increasing their success and the success of the group members. Some of the methods students used were to provide each other with assistance, exchange needed resources, provide feedback to improve subsequent tasks, and become motivated to strive for mutual benefit.

Armstrong (1994) states that cooperative groups are useful for multiple intelligence teaching because the groups can be structured to include students with varied intelligences. Armstrong further states that cooperative groups provide students with an opportunity to operate as a social unit, an essential requirement for successful functioning in real life work environments.. Armstrong (1993) stipulates that the United States is learning from other countries that in order to be more competitive in world business, we must be more cooperative in classrooms and in businesses. Businesses are including quality circles and other interpersonal groups in their companies.

According to Licklider, Storer, Cychosz, Wiersema, and Fields (1996), students working cooperatively learn more, experience belonging, acceptance, and support when they interact with

peers . Cooperative learning has the ability to increase the school success of students including academic achievement, cognitive, and emotional development. Another benefit of working within cooperative groups is that students gain essential interpersonal and intrapersonal skills (Licklider).

Glasgow and Bush (1995) observed that involved learning experiences required students to apply to real life what is being learned in the classroom. Students involved in active learning, experience greater success with lessons which were connected to real life situations and reproduced actual workplace situations. Cooperative groups provide a place for problem-solving, decision making, and role playing. These experiences challenge students to apply what they are learning (Glasgow and Bush).

According to Lyman, Foyle, and Azwell (1993), students need to appreciate the diversity of other students and develop social interaction that will foster positive relationships with them. One approach is to emphasize improving communication and understanding among cultural and ethnic groups. This research suggests that cooperative learning strategies improve both student achievement and interpersonal relations among various cultural and ethnic groups. Students must also develop skills and motivation that increase achievement in school. Cooperative learning is a method meeting these needs. Another advantage of cooperative learning is that students learn skills that are directly applicable to conflicts occurring in the classroom. Students also acquire important skills for future participation in a democratic society. The success of cooperative learning is based on how well students have been prepared to work together. Interaction found in cooperative groups is an important facet of building a positive, supportive class environment.

Bellanca and Fogarty (1991) suggest that another important component of a cooperative lesson is the metacognitive process involving reflective thinking wherein students are to think about what they are doing and how they've been doing it. During the metacognitive stage of thinking, the application and transfer of ideas is enhanced as students reflect upon their thinking processes within the groups. By talking about thinking, the teacher takes advantage of teachable moments and facilitates transfer of learning. This is a powerful important element in the cooperative classroom. The results in learning and motivation are dramatic once successful metacognition has been taught and applied in the cooperative classroom.

Ellis and Whalen (1990) cited several reasons for increased academic achievement when cooperative learning has been used successfully in a classroom. The first reason is oral rehearsal, or thinking out loud, i.e. to learn, we need to talk about what we are thinking. This helps us understand what we know and what we don't yet understand. The second reason for increased achievement is the added time on task that cooperative groups produce. It becomes increasingly difficult for a student's attention to wander without another group member noticing and pulling them back. The third reason cooperative learning aids in the transfer is that it promotes achievement. Students engage in higher order thinking during cooperative activities which tend to operate on the knowledge and comprehension level. Finally, cooperative learning is an effective tool because it promotes the development of students' self esteem. As students submit their contribution, they begin to see themselves as competent producers who are valued by their peers.

Jones and Pierce (1992) continue to support the idea that students need to learn how to cooperate. Our role as teachers must be to prepare students for constantly meeting and working

with a variety of people. Cooperative learning is appropriate in teaching social values and skills as well as achieving cognitive goals across the curriculum. These approaches have been found to be highly effective with students at risk, changing achievement, self-concept and classroom climate.

Schumaker (1992) explains that when cooperative learning is used correctly in the classroom, it is a powerful tool for teaching real life skills. Schumaker further states that cooperative learning is an important instrument from elementary school through university level continuing into the business world.

Bellanca (1992) recommends incorporating content, cooperation, and complex thinking within cooperative groups. When these three pieces are in place, results are exponential rather than additive. Students cover more content ,understand it more deeply, and are able to apply it more accurately.

Fusco and Fountain (1992) remind us that cooperative grouping provides an arena for refining thinking, learning new ways of approaching ideas, and building on convergent or divergent thinking. Fusco and Fountain continue by suggesting cooperative groups allow students to listen to each other, organize and share their thinking, and build on common experiences. Cooperative groups include an occasion for shared and individual reflection. Cooperative learning united with reflective journaling allows the students to assess their own skills and decide how to improve them.

Lyman et al. suggest appropriate cooperative learning strategies can involve all students in their own learning, maximizing student involvement in the lesson. Cooperative learning is an

important vehicle for practicing language arts skills and helping students become more successful communicators.

In respect to cooperative learning, Slavin (1987) suggests the usefulness of these strategies for improving differing outcomes such as student achievement at various grade levels, intergroup relations, and self-esteem. When the class is structured to allow students to work cooperatively, students benefit academically as well as socially. Also because of their effectiveness and practicality, cooperative learning methods are being used increasingly in the United States. Cooperative learning methods usually work well for all types of students. Although some studies find particular advantages for high or low achievers, boys or girls, and so on, the majority find equal benefits for all types of students (Slavin, 1994).

Kagan (1992) argues that cooperative teamwork, interaction, and communication will characterize the workplace in the future. Therefore, it is imperative that our classroom include cooperative learning as well as individualistic and competitive interaction. Studies have also demonstrated that when students are allowed to work together, they experience a variety of social and problem solving skills as well as a willingness to help others. Kagan further states that students in cooperative groups are more active, self-directed, and expressive, all of which may be associated with achievement gains. Kagan agrees with other researchers regarding the positive outcomes of cooperative learning and feels the three most important outcomes are academic gains, improved race relations, and improved social and affective development among all students. There is also evidence, provided by Kagan, that cooperative learning has a positive impact on classroom climate, self esteem, time on task, attendance, and enjoyment of school and learning.

Using multiple intelligence for the teaching of transfer, experienced educators acknowledge that even the most innovative curriculums and dynamic pedagogical methods do not affect all students equally. Research indicates however, that all students can learn what educators want them to know as long as students are introduced to new information through a variety of different methods and experiences.

Humans exhibit intellectual behavior in a wide variety of ways. People are not simply "smart" or "dumb"; rather they vary in their intellectual strengths depending on the context in which they are working (White, Blythe, and Gardner, 1992). Nothing is wrong with students who do not perform well in the traditional classroom. They simply have strengths that the traditional classroom does not recognize or utilize.

According to Campbell, Campbell, and Dickinson (1996), Howard Gardner disassociated himself from the common belief that traditional intelligence is based on the assumptions that human cognition is unitary and individuals can be adequately described as having a single quantifiable intelligence. In 1983, Gardner introduced his theory of multiple intelligence in the book, Frames of Mind: The Theory of Multiple Intelligence. Gardner contends that we all possess several different and independent capacities for solving problems and creating products. He defines these capacities as intelligences. Gardner contends that learning styles and multiple intelligences are not the same.

According to Silver, Strong, and Perini (1997), learning styles emphasize the different ways people think and feel as they solve problems, create products and interact. The Theory of Multiple Intelligence is an effort to understand how cultures and disciplines shape human

potentials. Learning styles are concerned with differences in the process of learning whereas multiple intelligences center on the content and products of learning. Gardner, as cited by Silver et al.(1997, p 45) states:

> In the Multiple Intelligence Theory, I begin with a human organism that responds (or fails to respond) to different kinds of content in the world. Those who speak of learning styles are searching for approaches that ought to characterize all contents.

Silver et al. (1997) further acknowledge that Gardner's model of multiple intelligence is backed by a research base that combines rich physiology, anthropology, and personal and cultural history. This theoretical depth is sadly lacking in most learning style models. Gardner's intelligences are not abstract concepts but are recognizable through common life experiences. The Multiple Intelligence Theory looks where learning style does not: it focuses on the content of learning and its relationship to the disciplines. To date, Gardner and his colleagues have identified eight intelligences: verbal/linguistic, mathematical/logical, musical/rhythmic bodily/kinesthetic, intrapersonal, interpersonal, and the naturalist intelligence.

In 1995, Gardner explained the difference between an intelligence and a learning style with the following example:

If a person is said to have a "reflective" or an "intuitive" style, this designation assumes that an individual will be reflective or intuitive with all manner of content, ranging from language to music and social analysis. However, such an assertion reflects an empirical assumption that actually needs to be investigated. It might well be the case that an individual is reflective with music but fails to be reflective in a domain that requires mathematical thinking or

that a person is highly intuitive in the social domain but not the least intuitive when it comes to mathematics or mechanics (p.203).

Gardner established criteria to measure whether a talent is actually an intelligence. He determined that each intelligence must have a developmental feature, be observable in special populations such as prodigies or "idiots savants", provide some evidence of localization in the brain, and support a symbolic or notational system.

David Lazear (1992) states that approximately 95% of the material educators have to teach comes prepackaged in a verbal/linguistic or mathematical/logical form. Evidence of this can be observed in many of the current prepackaged tests and review sheets found in textbooks and teaching manuals used in today's classrooms.

White et al. (1992) contend that there may be more than one way to achieve the goals of traditional academic curriculum. Because each student has different strengths for experiencing the world, a presentation of curriculum which emphasizes only language and logic will not be as equally meaningful for all students. Each student will thrive depending on how he or she experiences the new materials. While some students need visual and physical representations of concepts, other students will prefer abstract mind work. Still, other students need ideas explained verbally in several ways. Some students benefit when a classmate explains materials and some students work best when given the opportunity to play for some time with the materials (in a lab) and there will be some students who want to be told the information directly.

Loucks-Horsley, Phlegar, and Stiegelbauer (1992) contend that many schools stifle and inhibit rather than promote and facilitate learning. The focus is on rote memorization, individual

achievement, and testing solely for grading purposes (p.149). Educators must keep in mind that what is essential learning cannot always be assessed by the traditional paper and pencil test. The scheduling of classes in many schools, particularly in high schools, forces teaching and learning to be chunked unnaturally. Curriculum delivered by discipline and other approaches that work against what we have come to know works for young people to develop conceptual understanding and critical skills all inhibit students ability for meaningful transfer.

Teele (1996) states that the implementation of the Multiple Intelligence Theory to curriculum, instruction, and assessment provides opportunities for all students to learn and achieve in their own special ways. Students must be able to make the connection between the material presented in the classroom and its importance and necessity in the real world.

White et al. (1992) contend that educators need to create strategies that help students gain the knowledge of a lesson using many different ways of knowing. They offer the following examples:

> A child who is not strong in grasping math concepts may understand if these concepts are put to music or rap. Reading can also come through musical rap; math can spring through physical movement (p. 129).

Chapman (1993) states that rather than completing boring worksheets, students can learn to make predictions, explain why a story occurred, and forecast scientific results. As students learn in different ways, they will demonstrate successes not anticipated in the old models of learning. Multiple intelligence personalizes each student's educational experience by connecting the student's total life to the learning in the classroom (Burke-Guild, and Chock-Eng,1998). The

Multiple Intelligence Theory entails not only what a student knows but also what a student can do (Jordan, 1996).

Transfer of learning means learning something in one context and applying it in another (Fogerty, Perkins, and Barell 1992). Educators who incorporate multiple intelligence as part of their curriculum, continuously demonstrate that by utilizing students' learning strengths and individual intelligences, will see the results as students become more effective and efficient learners and are able to transfer knowledge.

Gardner (1997), contends:

> When I talk about understanding and transfer, I mean that students can take ideas they learn in school or anywhere for that matter and apply those appropriately in new situations. We know people truly understand something when they represent knowledge in more than one way (p.11).

Gardner further propounds that the use of multiple intelligence can engage more students and encourage a deeper understanding in preparing students for the workplace (p.20).

According to Greenhawk (1997), there are several good reasons for the application of the Multiple Intelligence Theory in today's classrooms. She maintains that the use of multiple intelligence activities in the classroom helps students to understand their abilities and those of others, demonstrates to students how to use their strengths both to learn and to work on their weaknesses. She further contends that multiple intelligence experiences engage so many senses that they will never be forgotten and students will build confidence and will be more willing to

take educational risks. Kovalik and Olsen (1994), stipulate that the utilization of multiple intelligence in the classroom provides students with "unforgettable learning experiences" (p.36).

When students are allowed to make use of their intellectual strengths, they will find the task more intrinsically stimulating and will assert more effort in mastering the task. A study that addressed the lack of motivation in students in middle schools, conducted by Lane, Marquardt, Meyer, and Murray (1997) revealed that as a result of providing multiple intelligence learning activities two to three times a week, for a period of three months, students in this study demonstrated both a higher level of intrinsic motivation and improved transfer of learning among most of the students.

Emig adds that students who are using their areas of strength to learn feel more competent and confident and enjoy the challenge of acquiring new information. They participate more fully and retain more information because they can more easily see connections.

In an attempt to improve scores on the Maryland School Performance Assessment Program (MSPAP), educators at the White Marsh Elementary School introduced the Theory of Multiple Intelligence in the classrooms. The assessment required students to be able to apply the basic skills of math, science, writing, and social studies and demonstrate transfer of learning to solve difficult, real life problems. After the first year, scores on the MSPAP increased by 20%. Students were able to recall more information and were able to use the basic knowledge to solve problems (Greenhawk, 1997).

Roots and Wings is an effective program that assists in the restructuring of school curriculum. According to Slavin, Madden, Dolan and Wasik (1994), one of the primary

objectives of this design through the use of multiple intelligence is to "engage students in activities that enable them to apply everything they learn so they can see the usefulness and interconnectedness of knowledge. In this program, students must utilize and understand their own multiple intelligence and connect knowledge from different disciplines" (p.12).

The goal for educators is to create strategies and methods that encourage, inspire, and challenge students to feel competent and possess a desire to learn. Campbell (1994) contends that if we accept the idea that individuals have diverse cognitive profiles, then pedagogy, curriculum, and assessment will need to change so that students can learn and demonstrate their learning in different ways.

Project Objectives and Processes

As a result of increased instructional emphasis in the area of multiple intelligences, during the period of September 1999 to January 2000, the second, sixth, and tenth grade students from the targeted classes will increase their transfer of knowledge as measured by teacher generated assessments, teacher observations, and student journaling.

In order to accomplish the project objective, the following processes are necessary:

1. Determine which multiple intelligences will be implemented.
2. Gather materials and activities that promote the multiple intelligences.
3. Analyze and determine which materials and activities will be used, and develop or adapt as needed.
4. Integrate materials into the curriculum, determining what activities will be used, when and how long.
5. Create lessons that foster transfer of knowledge through the use of multiple intelligences.
6. Review students' records to glean their multiple intelligences strengths or weaknesses.
7. Determine which multiple intelligence student survey will be used. (Multiple Intelligence Developmental Assessment Scales - MIDAS for Kids).

8. Obtain Multiple Intelligence Developmental Assessment Scales – (MIDAS for Kids) (Appendix J).

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Project Action Plans

Once baselines had been established, each teacher researcher formulated a plan of intervention based on Multiple Intelligence Theory, cooperative learning strategies and journaling. The fifteen week action plans were as follows:

I Teacher A: (Reading second graders of average and low ability)

Week one: Assessment

A. Introductory activities

1. Send letter to parents explaining the research project (Appendix K)

2. Send home parent survey (Getting to Know Your Child) (Appendix L)

3. Complete journal entry

B. Student assessment activities

1. Administer pre-intervention assessment

2. Administer student interest survey

Week two: Continued assessment and introduction to multiple intelligence

A. Introductory activities continued

1. Conduct student "Multiple Intelligence Developmental Assessment Scales" (MIDAS)

2. Discuss individual student results of "Multiple Intelligence Developmental Assessment Scales" in regard to identification of developed intellegences

3. Write teacher journal entry

B. Introduce Multiple Intelligences Theory

1. Read the parable "The Prince"

2. Conduct lecture and class discussion about various learning capacities

3. Create student generated bulletin board on multiple intelligence theory

4. Distribute student handout detailing the multiple intelligences for reference purposes

Weeks three through twelve: Presentation of eight multiple intelligences

A. Each presentation will include:

1. Definition

2. Examples demonstrating application of each intelligence

3. Two activities related to the targeted intelligence that may enhance transfer of learning
4. Suggested transfer application to daily life activities
5. Reflections/journaling weekly

Week three: Interpersonal intelligence

A. Implement two interpersonal activities
   1. Use a people search activity
   2. Write similes in cooperative groups
B. Teacher activities
   1. Complete teacher observation checklist
   2. Write teacher journal entry

Week four: Intrapersonal intelligence

A. Implement two intrapersonal activities and review one interpersonal activity
   1. Introduce reflection through journaling
   2. Write or draw in journal reactions to student interest survey
   3. Review interpersonal-intelligence using a "Me Bag"
B. Teacher activities
   1. Complete teacher observation checklist
   2. Write teacher journal entry

Week five: Naturalist intelligence

A. Implement two naturalist activities and review one intrapersonal activity

1. Take a walk looking for birds and nests in relation to the story "Gloria Who Might Be My Best Friend"
2. Field trip to Willowbrook Nature Center; continue discussion of birds in relationship to the story
3. Review intrapersonal intelligence utilizing reflective journaling about the field trip

B. Teacher activities

1. Complete teacher observation checklist
2. Write teacher journal entry

Week six: Bodily/kinesthetic

A. Implement two bodily/kinesthetic activities and review one naturalist activity

1. Role play from the wolf's point of view in the story "The Wolf's Chicken Stew"
2. Students will create and demonstrate a silly stew recipe
3. Review the naturalist intelligence using a Venn diagram to discuss similarities and differences between chickens and wolves

B. Teacher activities

1. Complete teacher observation checklist
2. Write teacher journal entry

Week seven: Logical/mathematical intelligence

A. Implement two logical /mathematical activities and review one bodily/kinesthetic activity

1. After reading "Swamp Monsters" sequence the events in the story
2. Teach the skill cause and effect

3. Review bodily/kinesthetic intelligence by writing a poem using the word MONSTER

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week eight: Verbal/linguistic intelligence

A. Implement two verbal/linguistic activities and review logical/mathematical activity

1. Before reading Amelia Bedelia use What We Know-What We Want to Know-What We Have Learned (KWL) strategy to predict what will happen in the story

2. Use journaling to reflect about Amelia's misunderstanding of Mrs. Roger's directions

3. Review logical/mathematical intelligence using a word web showing words with more than one meaning

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week nine: Visual/spatial intelligence

A. Implement two visual/spatial intelligence activities and review one verbal/linguistic activity

1. After reading " Monkey Monkey's Trick" ask students to create a strange creature mask

2. Students will create a comic strip related to the story

3. Review verbal linguistic intelligence using pair share technique

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Weeks ten through eleven: Musical/rhythmic intelligence

A. Implement two musical/rhythmic activities and review one visual/spatial activity

1. Choral read the selection "Do You Know About Stars?"

2. Create a poem about stars

3. Review visual/spatial intelligence using a star graphic organizer to identify five facts about stars

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week twelve through thirteen: Multiple intelligences project

A. Review of multiple intelligence

1. Provide time for students demonstration transfer of knowledge in creating a project using their strongest intelligence

2 Allow time for students to work during this week on selected project

3. Student presentation of project

B. Teacher Activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week thirteen: Multiple intelligence Project

1. Student presentation of project
2. Complete teacher observation checklist
3. Write journal entry

Weeks fourteen through fifteen: Review and evaluation

A. Conduct review and evaluation activities

1. Allow students time to complete reflections through journaling
2. Prepare student exhibit of multiple intelligence project
3. Administer post-intervention assessment
4. Complete any unfinished culminating activities
5. Student reflection and journaling

B. Teacher activities

1. Complete teacher observation checklist
2. Complete final teacher journal entry

II. Teacher B (Math: sixth graders of low average and average ability)

Week one: Assessment

A. Introductory activities

1. Send letter to parents explaining research project (Appendix M)
2. Send parent survey letter ("Getting to Know Your Chiid") (Appendix L)
3. Complete teacher journal entry

B. Student assessment activities

1. Administer pre-intervention assessment
2. Administer student interest survey

Week two: Continued assessment and introduction to multiple intelligences

A. Introductory activities continued
   1. Conduct student Multiple Intelligence Developmental Assessment Scales (MIDAS) (Appendix J)
   2. Discuss individual student results of Multiple Intelligence Developmental Assessment Scales (MIDAS) in regard to identification of developed intelligences
   3. Complete teacher journal entry

B. Introduce Multiple Intelligence Theory
   1. Read the parable "The Prince"
   2. Conduct lecture and class discussion about various learning capacities
   3. Create student-generated bulletin board on Multiple Intelligence Theory
   4. Distribute student handout detailing the multiple intelligences for reference purposes

Weeks three through twelve: Presentation of eight multiple intelligences

A. Each presentation of an intelligence will include:
   1. Definition
   2. Examples demonstrating application of each intelligence
   3. Two activities related to the targeted intelligence that may enhance transfer of learning
   4. Suggested transfer applications to daily life activities

5. Reflections/journaling weekly

Week three: Interpersonal intelligence

A. Implement two interpersonal activities

1. Investigate perimeter and area in cooperative groups

2. Use a people search activity on measurement

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week four: Intrapersonal intelligence

A. Implement two intrapersonal activities and review one interpersonal activity

1. Teach reflection through journaling

2. Write in journals individual reactions to results of student interest survey

3. Review the interpersonal intelligence with "me folders"

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week five: Naturalist intelligence

A. Implement two naturalist activities and review one intrapersonal activity

1. Investigate area by measuring sidewalk squares on outside school walks

2. Incorporate rectangles with similar areas into a scavenger hunt activity

3. Review the intrapersonal intelligence by using positive/minus chart as an organizer

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week six: Bodily/kinesthetic intelligence

A. Implement two bodily/kinesthetic activities and review one naturalist activity

1. Use wrapping math centimeter cubes with grid paper to demonstrate surface area and relate to "space food" story read in class

2. Using scissors and grid paper, cut different patterns of "space armor jackets" for wooden centimeter cubes

3. Review the naturalist intelligence with a discussion of plans for the upcoming outdoor education trip to Timberlee Outdoor Education Center

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

3. Week seven: Logical/mathematical intelligence

A. Implement two logical/mathematical activities and review one bodily/kinesthetic activity

1. Use a graphic organizer to list dimensions of solid blocks: bottom front edge (BF), bottom side edge (BS), and height (H)

2. Use a mathematical formula to find surface area by totaling the sum of areas of all faces of the centimeter block package

3. Review bodily/kinesthetic intelligence by building a solid block with surface area constraints

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week eight: Verbal/linguistic intelligence

A. Implement two verbal/linguistic activities and review one logical/mathematical activity

1. Utilize a prediction strategy on situations involving volume of the centimeter cube packages

2. Develop peer tutoring with the students; partner share activities

3. Review the logical/mathematical intelligence with math logic puzzles

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week nine: Visual/spatial intelligence

A. Implement two visual/spatial activities and review one verbal/linguistic activity

1. Provide use of the overhead for student presentation of math problems

2. Allow time for creative exploration of math manipulatives

3. Review verbal/linguistic intelligence with student creation of comic strips using math vocabulary terms

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Weeks ten and eleven: Musical/rhythmic intelligence

A. Implement two musical/rhythmic activities and review one visual/spatial activity

1. Create math jingles, songs, rap, cheers, and poems with students

2. Play background music during periods of quiet, independent work

3. Review the visual/spatial intelligence by having students create posters, charts, or graphic organizers to review the current unit material

B. Teacher activities

1. Complete the teacher observation checklist

2. Write the teacher journal entry

Weeks twelve and thirteen: Multiple intelligence project

A. Review of multiple intelligences

1. Provide time for students to demonstrate transfer of learning by creating a class project using their strongest intelligence

2. Allow class presentation of student projects

3. Review musical/rhythmic intelligence by utilizing a choral reading activity announcing the presentation of each individual's project

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Weeks fourteen and fifteen: Review and evaluation

A. Conduct review and evaluation activities

1. Allow students time to complete reflections by journaling

2. Prepare student exhibit of multiple intelligence projects

3. Administer post-intervention assessment to students

4. Complete any unfinished culminating activities

B. Teacher activities

1. Complete teacher observation checklist

2. Write final teacher journal entries

Teacher C (First Aid: 10th graders of average ability)

Week one: Continued assessment and introduction to multiple intelligences

A. Introductory activities

1. Send home parent survey. ("Getting to Know Your Child") (Appendix L)

2. Complete teacher journal entry

B. Student assessment activities

1. Administer student interest survey

2. Administer pre-intervention assessment

Week two: Continued assessment and introduction to multiple intelligence

A. Introductory activities continued

1. Conduct student survey: "Multiple Intelligence Development Assessment Scale" (MIDAS) (Appendix J)

2. Discuss individual student results of Multiple Intelligence Development Assessment Scale. Identification of developed intelligences

3. Complete teacher journal entry

B. Introduction of Multiple Intelligences Theory

1. Conduct lecture and class discussions.

2. Create student-generated bulletin board.

3. Distribute student handout detailing the multiple intelligences for reference purposes

Week three- twelve: Presentation of the eight multiple intelligences

A. Each presentation of a intelligence will include:

1. Definition

2. Examples demonstrating application of each intelligence

3. Two activities related to the targeted intelligence that will enhance transfer of learning

4. Identify transfer applications to daily life activities

5. Reflection/journaling weekly

Week three: Interpersonal intelligence

A. Implement two interpersonal activities:

1. People search

2. Cooperative group activity related to emergency situations

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week four: Intrapersonal intelligence

A. Implement two intrapersonal activities and review one interpersonal activity

1. Introduce reflection through journaling

2. Journaling activity related to student interest survey

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week five: Naturalist intelligence

A. Implement two naturalist activities and review one intrapersonal activity

1. Outdoor simulation of emergency situations

2. Discussion and demonstration of first aid for animals

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week Six: Bodily/kinesthetic intelligence

A. Implement two bodily/kinesthetic activities and review one naturalist activity

1. Practice rescue breathing with a decorated one-gallon jug

2. Partner practice rescue breathing on manikin with a partner

B. Teacher activities

1. Complete teacher observation checklist

2. Write teacher journal entry

Week seven: Mathematical/logical intelligence

A. Implement two mathematical/logical activities and review one bodily/kinesthetic activity

1. Partner graphic organizer project for sequential steps of rescue breathing or emergency action steps
2. Problem solving activity related to Cardio Pulmonary Resuscitation (CPR)

B. Teacher activities

1. Complete teacher observation checklist
2. Write teacher journal entry

Week eight: Verbal/linguistic intelligence

A. Implement two activities related to the verbal/linguistic intelligence and review one logical/mathematical activity

1. Peer teaching assignment related to abdominal thrusts and transportation of a victim
2. Newspaper article report activity

B. Teacher activities

1. Complete teacher observation checklist
2. Write teacher journal entry

Week nine: Visual/spatial intelligence

A. Implement two activities related to visual/spatial intelligence and review one verbal/linguistic activity

1. Public service poster project with partner
2. Study guide assignment using a graphic organizer

B. Teacher activities

1. Complete teacher observation checklist

Weeks ten and eleven: Musical/rhythmical intelligence

A. Implement two activities related to musical/rhythmic intelligence and review one visual/spatial activity

1. groups of three choose the background music that will be used each day
2. groups of three create a song or rap or poem related to one of the previous chapters

B. Teacher activities

1. Complete teacher observation checklist
2. Write teacher journal entry

Weeks twelve through fourteen: Final project

A. Review of multiple intelligences.

1. Provide time for students to demonstrate transfer of learning by creating a project using their strongest intelligence
2. Class presentation of student projects

B. Teacher activities

1. Complete teacher observation checklist
2. Write journal entry
3. Design a rubric for evaluation of projects
4. Video final products
5. Exhibit final products in classroom

Week fifteen: Evaluation

A. Conduct review and evaluation activities

1. Administer post intervention assessment
2. Student reflection and journaling

B. Teacher activities

1. Complete teacher observation checklist

2. Write journal entry

Methods of Assessment

In order to determine the effects of the intervention, teacher researchers will keep records of the engagement of targeted students in the use of multiple intelligences and the transfer of learning to other life activities. These records will be in the form of teacher checklists and both student and teacher anecdotal journal entries. Pretests and posttests that assess the transfer of knowledge to real life situations will be designed and utilized. Because the transfer of knowledge is the desired outcome, the use of traditional and authentic assessment will also be used to determine levels of student engagement, mastery of skills, and achievement.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The three researchers identified and documented the problem of students' lack of ability to transfer knowledge to real life experiences at each school site. Review of the literature regarding the causes and solutions followed. Then, the researchers designed the action plans necessary to achieve the desired outcome. The implementation of journaling, cooperative learning experiences and Multiple Intelligence Theory was selected to affect the desired change of transfer of knowledge to real life situations. The researchers developed and formulated the teaching strategies and classroom activities based on journaling, cooperative learning, and the Multiple Intelligence Theory. Each multiple intelligence lesson presentation included a definition, examples demonstrating application of the intelligence, two activities related to the targeted intelligence that were to enhance transfer of learning, suggested transfer application to daily life activities, and personal reflections.

In developing an intervention plan, age appropriate student surveys (Appendices A, B, and C) and learning inventories (Appendices D, E, and F) were also designed and implemented. The Multiple Intelligence Developmental Assessment Survey (MIDAS) (Appendix J)was administered to students in the targeted classes. Results were discussed with students and parents.

Pretests/posttests (Appendices G, H and I) that assessed the transfer of knowledge to real life situations were designed and utilized.

Action plans originally called for the introduction of a specific multiple intelligence each week with learning activities, reviewing that intelligence the following week. At School Site A, this plan was easily facilitated according to schedule. However, at School Sites B and C, pre-established sequence of the curriculum content caused the sequence of multiple intelligence activities to be altered. Cooperative learning and journaling activities were interspersed throughout implementation of the action plans.

School A

A package containing a release form, a letter explaining the research project, and survey asking about their child's interests was sent to the parents. Once all release forms and surveys were completed and returned, Researcher A introduced and highlighted the use of multiple intelligences by reading the parable "The Prince" to the students.

Following these introductory steps, students were given an overview of each of the eight intelligences. Students also discussed and helped to create a bulletin board depicting the multiple intelligences. Throughout the intervention, students were introduced to a new intelligence each week and also reviewed the intellegences covered in earlier lessons. Researcher A introduced the bodily/kinesthetic intelligence through the use of role playing activities. Students read the story "The Wolf's Chicken Stew" and worked in cooperative groups with each group presenting a "retelling" of the story. In another lesson, students read "Monkey, Monkey's Trick". To introduce the visual/spatial intelligence, students created a strange creature mask and comic strip related to the story.

In the final weeks of the intervention, students were introduced to the musical/rhythmic intelligence through choral readings. Poetry about stars was used as a vehicle for these lessons. As a class project, students created poems about stars and displayed them on a school bulletin board.

Cooperative learning experiences were utilized to create similes, using Venn diagrams to discuss similarities and differences between characters and word webbing for multi-meaning words. The researcher placed students randomly in cooperative groups for these activities.

The intrapersonal intelligence was introduced through activities involving reflection and journaling. Students were required to reflect and journal about such items as story characters, results of a people search about other student's interests, and a field trip to a nature center.

Throughout the intervention, the second graders were introduced to and asked to participate in a variety of activities. Tools such as the "Me Bag", Venn diagrams, role-playing, nature walks, sequencing, KWL, webs, and journaling were used to encourage and enhance growth in each of the eight intelligences.

School B

The intervention activities began with a reading of "The Prince" to illustrate and explain the use of multiple intelligences. In addition to serving as an introductory activity, this reading allowed students to see how problem-solving skills could be improved through the use of a variety of activities.

Following the reading, students were exposed to many multiple intelligence activities. For example, by relating volume and surface area to a "space food" story read in class, the verbal/linguistic intelligence was introduced. Using grid paper and scissors, students employed

their bodily/kinesthetic intelligence by cutting out and wrapping "space food jackets" around their centimeter cubes for space food. Logical/mathematical and visual/spatial intelligences were demonstrated with students using graphic organizers to list dimensions of these solid blocks and using mathematical formulas to find surface area by totaling the sum of all areas of the centimeter block packages.

Cooperative learning strategies were also stressed during this time. Most task groups consisted of pairs or groups of four students grouped both randomly and by student choice. In addition to graphic organizers, the teacher researcher had students complete one major cooperative learning project which included a uniquely constructed cereal box created from the knowledge of mathematical principles involving surface area and volume. This activity was planned as an alternative assessment to the standard unit test, and a rubric was generated with student input during class discussion. A student exhibition was held in the classroom for the students to display their projects and share with other math classes.

During and after completion of many of the activities, the students reflected on their participation in classroom activities, growth in multiple intelligence areas, and academic progress. Journal entries were completed throughout the intervention plan. All of the student reflections were acknowledged in assessing overall effectiveness of using multiple intelligence theory, cooperative learning and journaling to increase the transfer of learning to daily life activities.

School C

Upon completion of the baseline data, which included student surveys, a pretest, and the Multiple Intelligence Developmental Assessment Survey (MIDAS), the intervention began with

a multiple intelligence activity that introduced the interpersonal intelligence. Students were required to complete a people search related to first aid topics. In this activity, students were required to interact with all members of the class while relating personal first aid experiences, for example, "find someone who has been rushed to a hospital in an ambulance". This activity served as an opportunity for students to get acquainted with each other as well as to "personalize" emergency situations and accidents. In addition, the students also came to realize that these situations are real and that they happen to people that they know not just strangers or characters on the television. Upon completion of the people search, students took turns relating personal stories and experiences verbally to the rest of the class.

Cooperative learning activities included group projects, demonstrations and presentations. One of the major cooperative learning and multiple intelligence assignments completed during the intervention involved students learning to administer rescue breathing and Cardio-pulmonary Resuscitation, (CPR). Students were allowed to choose their groups of three. Included in each triad were a "skill checker", "step reader", and a student practicing the skills on a manikin. Through the use of videos, graphic organizers, group discussions, role-playing and physical practice with a manikin, students worked together and became proficient in these new skills. Each cooperative group received a rubric in the form of a checklist that was used for assessment.

Journaling and reflective activities were encouraged throughout the intervention. Students used these opportunities to express feelings about their new knowledge of multiple intelligence, observations about in-class group project results and making connections and transferring new skill information to real life situations.

Presentation and Analysis of Results

In order to assess the effects of journaling, cooperative learning and multiple intelligence theory in aiding the transfer of learning to real life situations, a pretest and posttest assessment was used. These tools were administered prior to and upon completion of the intervention.

School A

Fourteen of the original fifteen second grade students at School A were retested using a diagnostic reading test called Standardized Test for Assessment of Reading (S.T.A.R.) (Appendix G). The posttest revealed that 21% of the students were still reading below grade level as compared with 57% prior to the pre-intervention assessment. The percentage of students reading at or above grade level rose to79%, an increase of 29% since the pretest was administered. Figure 18 shows the results of the diagnostic test.

School A - S.T.A.R. Posttest

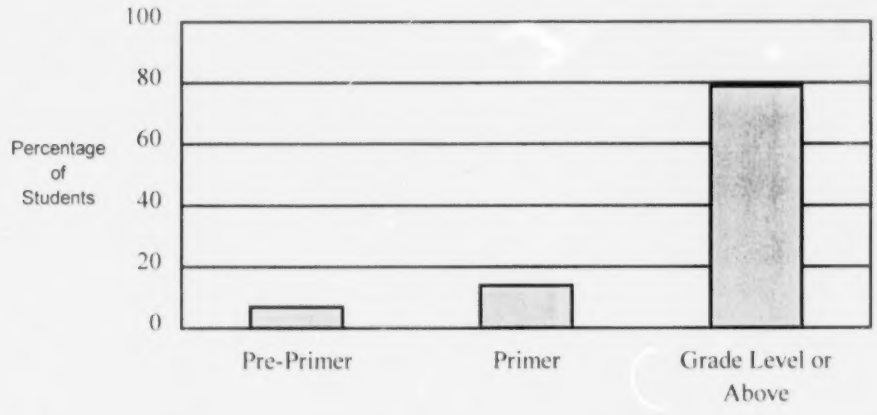

Figure 18. Results of the S.T.A.R. Posttest

School B

A post-intervention assessment was administered to the targeted class of sixth grade math students. All of the students responded that they had some previous experience with the subject of geometry. This posttest gathered data in the same four categories as the pretest. Specific areas included knowledge of situations requiring use of perimeter and area, knowledge of situations requiring use of surface area and volume, application of formulas and solutions of problems, and recognition of how geometry is helpful in daily life activities.

When asked to demonstrate the need for using perimeter and area in life situations, the percentage of students reporting 100% accuracy rose from 57% to 77%, while those responding with 80% accuracy dropped from 24% to14%. Correctly recognizing the use of perimeter and area with 60% accuracy changed from 14% to 5% on the post-intervention assessment. No change was noted on the pretest and posttest intervention assessment with the same 5% responding with 20% accuracy.

School B Post-Intervention Geometry Assessment

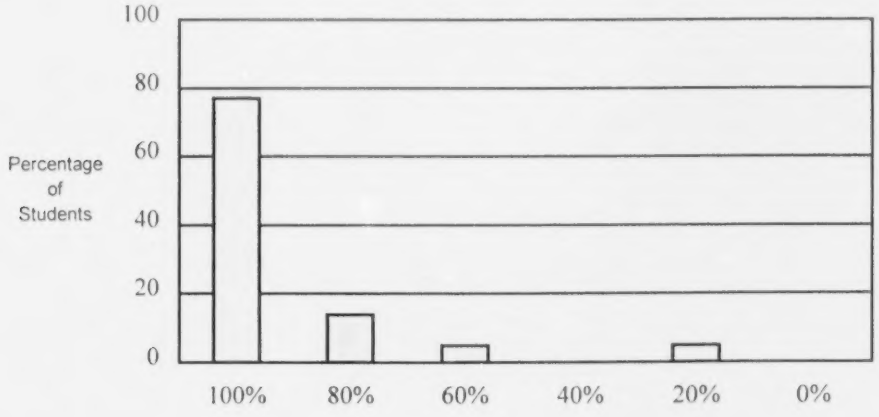

Figure 19. Accuracy of Knowledge of Situations Requiring Use of Perimeter and Area.

Although students had a greater difficulty assessing the need to use surface area and volume in applied situations on the pre-intervention assessment, this seemed to change on the post-intervention assessment. A larger percentage of students, 82%, was able to correctly identify its use with 100% accuracy. An additional 14% of the students reported 80% accuracy and 5% indicated 40% accuracy.

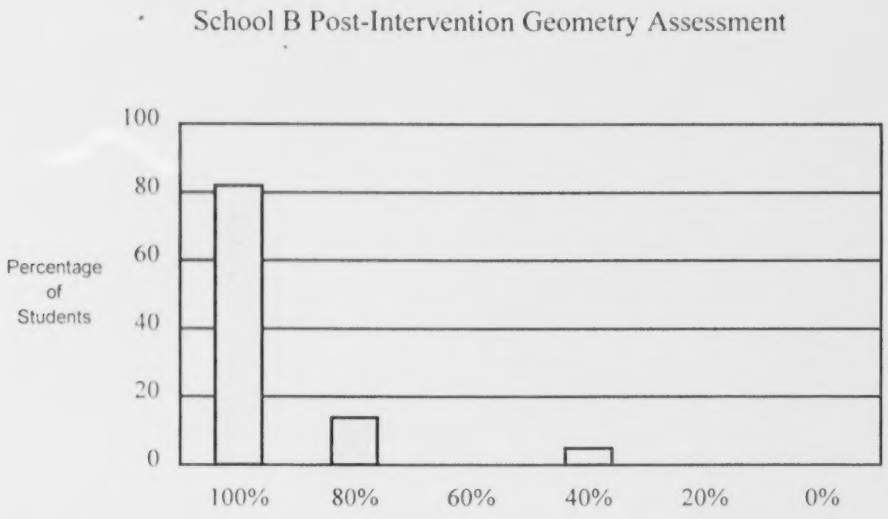

Figure 20. Accuracy of Knowledge of Situations Requiring Use of Surface Area and Volume

Students were then asked to solve problems that were accompanied by diagrams detailing length, width, and height dimensions by correctly applying formulas for the completion of the problem. Although none of the targeted students could do this on the pre-intervention assessment with 100% accuracy, the posttest results indicated 14% could now do it with an additional 50% of the students correctly solving four problems with 75% accuracy. On the pretest, 14% scored with 50% accuracy while on the posttest, 23% had that same score.

School B Posttest Geometry Assessment

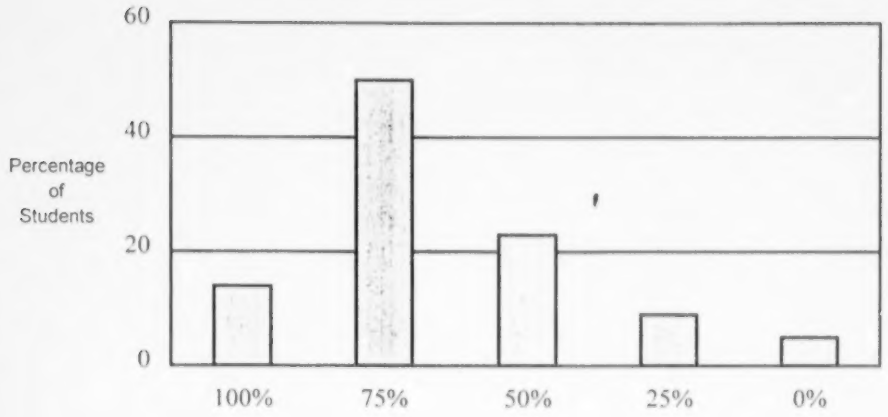

Figure 21. Percentage of Accuracy of Problem Solutions

The final question on the post-intervention assessment asked students to explain how knowing geometry would be beneficial to them. On the posttest, 95% of the students were able to correctly identify situations where using geometry would be helpful as compared to only10% on the pretest. In general, there seems to be overall improvement when comparing the results tabulated from the pre-intervention and post-intervention assessments in the targeted class of sixth grade math students.

School C

The tenth grade students at School C were given a posttest that collected data in the same manner as the pretest. Question one asked, "What should be the first thing that should be done in the situation that was observed in the video?". Posttest results indicated that 79% of the students answered the question correctly as compared to only16% of the same students who participated in the pretest. A few students, representing 9% of the class, responded with 25% accuracy where

prior to the intervention, 62% had 25% accuracy. The group of students representing 0% dropped from 24% on the pretest to 5% on the posttest.

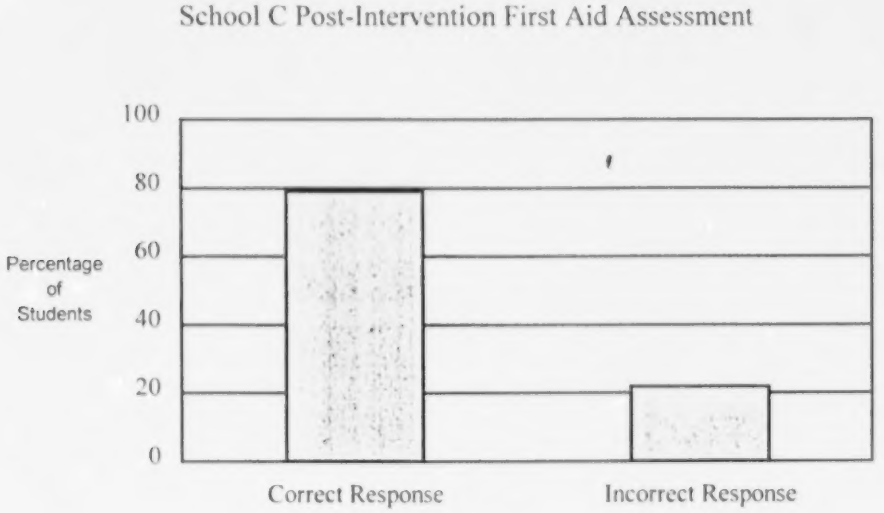

Figure 22. Results of Question One

Question two, "With the knowledge that you have right now, list four things that you could do to help and would not require you to touch either victim?" was answered completely correct by 57% of the students who took the posttest as compared to pretest results of 16%. The posttest indicated that 36% had three out of four responses correct as compared to pretest results of 23%. The percentage of students who answered half of the posttest question correctly was 29%, in contrast to the pretest responses of 4%. Only 4% of the students who took the posttest were able to answer one out of four of the responses correctly, as compared to pretest results of 16%. Although 6% of the students who took the pretest either left the answer blank or answered the entire question incorrectly, there were no occurrences of this in posttest results.

School C Post-Intervention First Aid Assessment

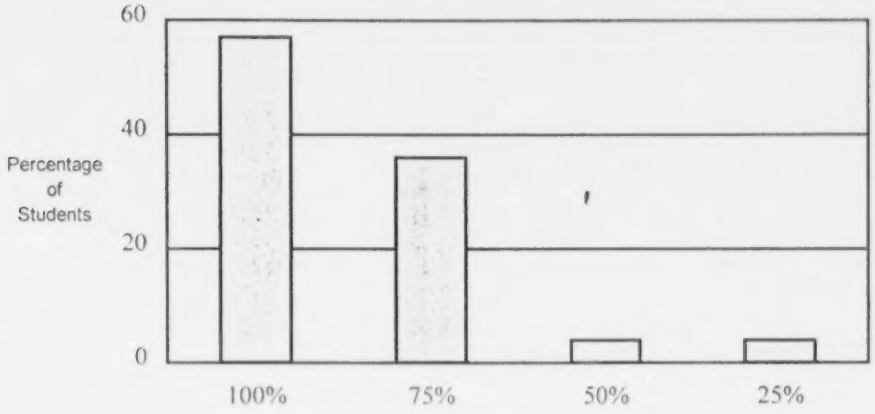

Figure 23. Results of Question Two

Question three asked, "With the knowledge you have right now, name four things that you could do to treat the little girl". Improvement was evident as half of the class taking the posttest answered the question completely correct compared to only 6% of the pretest respondents. While 26% of the class answered three out of four responses correctly during the pretest, the posttest indicated an improvement of 6%. Of the students who answered question three, 23% had half of the responses correct on the pretest. Posttest results indicated that only 7% of these students answered half of the responses correctly. Posttest results determined that only 10% of the students were able to answer only one response correctly as compared to the pretest results at 19%. While 26% of the students responding to the pretest either left the answer space blank or had no correct responses to the question, none of the students who completed the posttest had this same response.

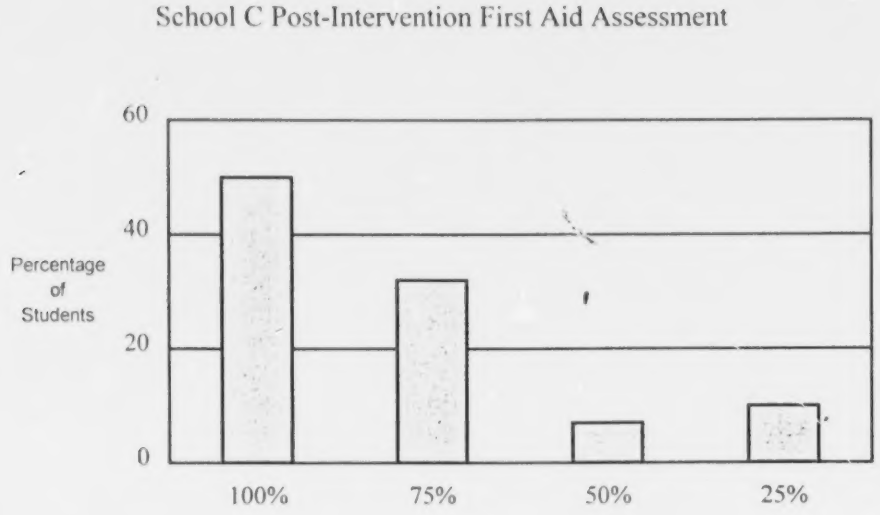

Figure 24. Results of Question Three

Question four inquired, "With the knowledge you have at this time, list four things that you could do to treat the father's wounds?". At the time that the pretest was administered, only 6% of the class answered this question completely correct, thus demonstrating a noticeable difference. In comparison, 75% answered the posttest question completely correct. Pretest results indicated that 32% of the class answered three out of four responses correctly, while 25% of the class answered three out of four responses correctly in the posttest. Although the percentage of students who answered half of the pretest question correctly was 19%, none of the students who completed the posttest were able to answer only half of the question. The pretest also indicated that 19% of the class answered one response correctly, whereas none of the students who completed the posttest were able to answer only one response correctly. While the pretest indicated that 19% of the students either left the answer blank or had no correct responses, none of the students who completed the posttest were unable to answer the question.

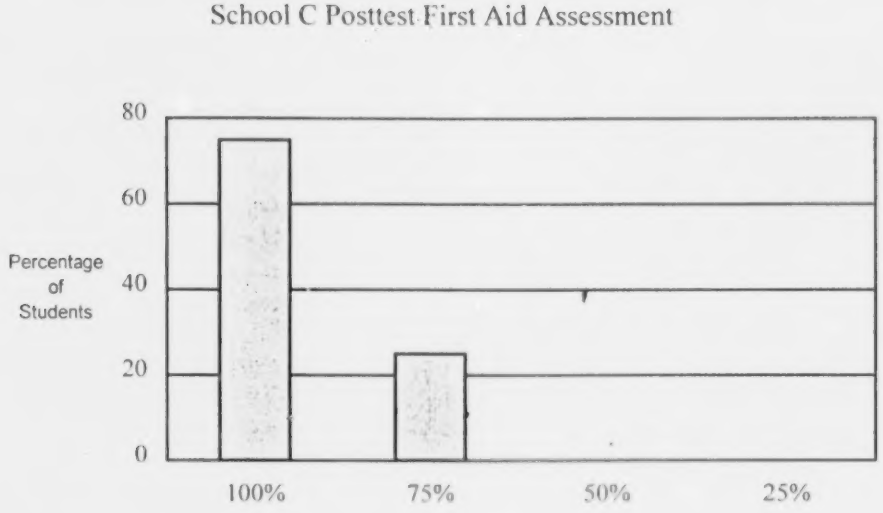

Figure 25. Results of Question Four

Conclusions and Recommendations

Based on the collection of the data throughout the intervention period and subsequent presentation and analysis of the data, the students exhibited improvement in their transfer of learning to real life experiences. Researchers observed this increase in transfer through positive classroom participation, cooperative group activities, reflective journaling, results on varied assessments as well as an increased personal knowledge of multiple intelligence strengths. Students continue to demonstrate marked improvement in relating their class lessons to everyday experiences.

During cooperative learning activities, the researchers observed that students exhibited an increased level of interest in participation and the connection of new concepts and skills to their personal lives beyond the classroom. One researcher noticed a compelling attitudinal change over time regarding reflective journaling. Students openly stated that they now found journaling

helpful because they could see the purpose behind the lesson and enjoyed the fact that journaling did not require right or wrong answers, just insightful opinions.

While all researchers found the Multiple Intelligence Theory to be valuable in the classroom, one researcher discovered it to be especially helpful for her students. Through the identification of their multiple intelligence strengths, students were able to use this knowledge to explore future college majors and possible career choices. Improved assessment results were also documented during the period of intervention.

Researchers endorse the implementation of the Multiple Intelligence Theory, cooperative learning and journaling in the classroom to enable students to make a positive investment and aid in the transfer of their learning. One suggested modification to the action research plan would be to make weekly planning less rigid. Curriculum constraints and unexpected fluctuations in school schedules needs to be carefully considered in developing realistic lesson plans and schedules. All three teacher researchers found it necessary to modify timelines, as the suggested action plans were not feasible as first scheduled. While this modification may have been a drawback to the original plan, the three teacher researchers do not want to discourage the use of these valuable interventions in the classroom.

Colleagues of the researchers have positively commented regarding the use of the intervention strategies in the classroom. Many have incorporated these strategies into their own teaching practices, and the three researchers have seen a large number of students benefit from their action research. Just as teachers are incorporating these best practices, students are utilizing them in their transfer of learning and everyone benefits. As Bellanca (1990) stated, "Our mission as educators is to help every child become a more active, engaged, committed, and skillful learner, not just for a test, but for a lifetime". (p.349)

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Appendices

Appendix A

School A Student Survey

Name

1.What are you best at doing? (major strengths)

2. Tell me about your interest$ and after-school activities.

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Appendix B

School B Student Survey

Student Survey

1. What are your major strengths (the things you do really well)?

2. Tell me about your interests and after school activities.

Appendix C

School C Student Survey

NAME:
PERIOD:

STUDENT SURVEY

***Please answer the following questions as accurately as possible.

1. Please list all of the adults living at your house. (over 21 years of age)
   Name Age Gender

2. Please list all of the children living at home, along with their ages and gender.
   Name Age Gender

3. Do you speak or understand a language other than English? If so, what language?

4. What do you think your strengths are as a person?

5. List 3 adjectives that you think people would use to describe you as a person.

6. What do you think your strengths are as a student?

7. What are your interests or activities out side of school?

8. Was Marian your first choice? If yes, why? If not, why not?

9. Do you have any specific learning problems? If so, what are they?

10. Describe any recent family events or changes in your life that have occurred in the past two years.

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Appendix D

School A Learning Inventory Reflection

Name

How do you like to learn about things?

reading
drawing
writing
acting
singing
working with others
working alone
discussing
math problems

Appendix E

School B Learning Inventory Reflection

Learning Inventory Reflection

How do you like to learn about things? For example, think about reading, drawing, acting things out, discussing, journal writing and poetry. Some other ways of learning also include music (rhythm, listening, playing instruments), art (drawing, sculpting, collage), math (calculating, measuring, solving puzzles), building activities (making things from different materials), movement activities (acting, dancing, juggling), working with others or working alone and thinking about things.

Appendix F

School C Learning Inventory Reflection

Name:
Period:

LEARNING INVENTORY / REFLECTION

1. What is your favorite subject at school?

2. What is your LEAST favorite subject in school?

3. How do you like to learn about things? (examples- reading, discussing, journal writing, working alone, constructing things from materials, singing, drawing, physically moving, working with others)

4. Why do you like to learn this way?

Appendix G

School A Pretest/Posttest

EDL Core Vocabularies in Reading, Mathematics, Science, and Social Studies

A Revised Core Vocabulary

Stanford E. Taylor
Helen Frackenpohl
Catherine E. White

Core Vocabulary for Mathematics, Grades 1-6

Betty Willmon Nieroroda
Carole Livingston Browning

Core Vocabularies for Science and Social Studies

E. Patricia Birsner

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Appendix H

School B Pretest/Posttest

Name _____
Class _____
Date _____

Geometry Pretest/Posttest

1. Have you studied geometry before? yes no a little

Tell whether perimeter or area needs to be used in the problem.

2. amount of grass seed to buy _____
3. amount of fencing needed for the playground _____
4. amount of new carpeting for the bedroom _____
5. amount of plants needed to go around the edge of a garden _____
6. amount of wood needed to make a new desktop _____

Tell whether surface area or volume needs to be used in the problem.

7. amount of milk that fills up a carton _____
8. amount of aluminum foil needed to line the inside of an oven on all sides _____
9. amount of plastic sheeting needed to waterproof a tent for camping _____

10. amount of water needed to fill a fish tank _____

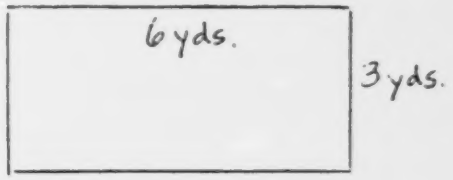
Appendix H (continued)

School B Pretest/Posttest

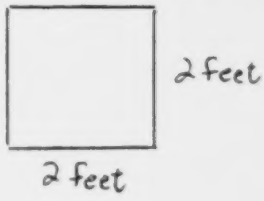
11. amount of newspaper to fill up a recycling container

_____

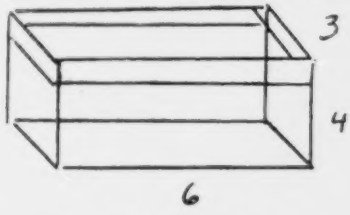
12. Find the **perimeter** of this backyard fence.



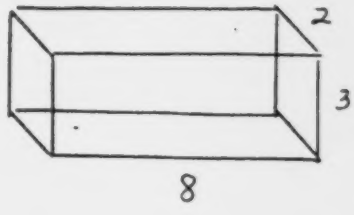
13. Find the **area** of this desk top.



14. Find the **surface area** of this shoe box.



15. Find the **volume** of this ice cream carton.



16. Explain how knowing geometry can be helpful to **you.** Give two examples when **you** could use geometry outside of the classroom.

_____

_____

_____

Appendix I

School C Pretest/Posttest

NAME:
PERIOD:

FIRST AID
PRETEST/POSTTEST

The accident you are about to witness could happen at any time; to you, to a friend, or to a family member...the question is ...what would YOU do? Answer the following questions as if the accident has just occurred and use only the first aid knowledge that **you know now**, right this minute. Running away from the accident scene is not an option!!

1. What is the FIRST thing that should be done?

2. With the knowledge that you know right now, list 4 things that you could do to help that would not require you to touch either victim?

3. With the knowledge that you have right now, name 4 things that you could do to treat the wounds of the little girl.

4. With the knowledge that you have right now, list 4 things that you could do to treat the father's wounds.

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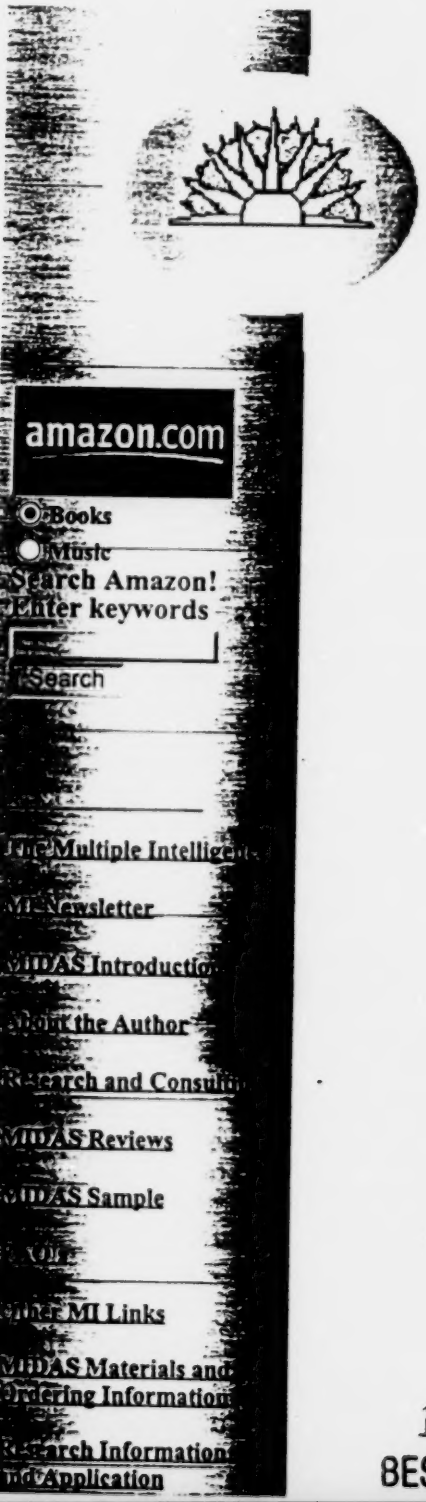
Appendix J

Multiple Intelligence Developmental Assessment Survey



MIDAS

Multiple Intelligences Developmental Assessment Scales

Welcome to The MIDAS home page!

The **Multiple Intelligences Developmental Assessment Scales (MIDAS)** provides an efficient method of obtaining a descriptive assessment of a student's multiple intelligence profile. The MIDAS is a self report measure of intellectual disposition and may be completed by either the child or a parent. Materials are available that can be used to enhance study skills, self knowledge, instructional approaches, curriculum planning and career development. There are MIDAS assessments for adults, adolescents and children.

To my knowledge, The MIDAS represents the first effort to measure the multiple intelligences, which have been developed according to standard psychometric procedures. Branton Shearer is to be congratulated for the careful and cautious way in which he has created his instrument and offered guidance for its use and interpretation.

--Dr. Howard Gardner, Harvard University, Author of Frames of Mind: The Theory of Multiple Intelligences

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Appendix K

School A Parent Letter

Saint Xavier University
Notification of Participation in a Research Study
Increasing Student Ability to Transfer Knowledge
Through the Use of Multiple Intelligences

Dear Parents,

As part of the requirements for my Master's degree from St. Xavier University, I am conducting a project that involves increasing students' ability to apply knowledge through the use of multiple intelligences. Educators are discussing that children have different areas that help them learn. Some children best by looking at a chart while others may learn best by creating a play. I hope your child will be able to discover his or her area of strength.

This project will take place over a sixteen week period of time. Students will be introduced to multiple intelligence activities that will help them transfer learning through their areas of strength.

Student participation in this project will not interfere with the day to day educational program or your child's grades Your child's privacy will be respected throughout the project. Names are not reported and no information will be released to unauthorized personnel. There is no cost or compensation for participating in this project.

To help me with this project I'm asking that you fill out the attached survey MIDAS for Kids. Please sign this letter and return as soon as possible.

I am very excited about this project and feel the students will be too. As always if you have any questions at anytime, please feel free to contact me.

Sincerely,

Mrs. Price

Mrs. Price

I give permission for my child to participate in this project

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Parents signature

Appendix L

Getting To Know Your Child Survey

Please help me get to know your child...

As your child's teacher, I'd like this school year to be the best your child has ever had. That's why I'm asking for your help. I've found that the more I know about my students, the easier it is for me to help meet their needs. For that reason, I would appreciate it if you could take time to answer the questions below. Of course, this is completely voluntary. If you don't feel comfortable answering a question, just skip it. Thank you so much for your time. Please return this form to me.

Child's Name: _____ **Nickname:** _____

1. Please list all the adults living in your child's household.

Name	Relationship
_____	_____
_____	_____
_____	_____
_____	_____

2. Please list all the children in the family, along with their ages and gender.

Name	Age	Sex
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. Does your child speak or understand a language other than English? _____
If so, what language? _____

4. What are your child's major strengths?

5. Tell me about your child's interests and after-school activities.

Please help me get to know your child...

6. Describe your child's feelings about school.

7. How does your child get along with other children?

8. Does your child have any problems with learning?

9. Please describe recent family events or changes (e.g., death, divorce, new sibling, moving).

10. How do you feel the teacher can best help your child this year?

11. Is there anything else you think your child would like the teacher to know about her/him?

12. Would you like to become involved in the classroom or school? Are you interested in helping in any particular area?

Please attach any additional comments or suggestions on a separate page.

These questions were answered by 130 Date _____

Thanks for your help!

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Appendix M

School B Parent letter

Saint Xavier University
Notification of Participation in a Research Study
Increasing Student Ability to Transfer Knowledge
Through the Use of Multiple Intelligences

Dear Parents,

As part of the requirements for my Master's degree from St. Xavier University, I am conducting an action research project that involves increasing students' ability to apply knowledge through the use of multiple intelligences.

This study will take place over a sixteen week period of time. Students will be participating in the Multiple Intelligence Developmental Assessment Survey (MIDAS) that will help identify their intellectual strengths by creating a learning profile. This profile will also help show you the way your student learns easily.

Student participation in this study will not interfere with the day to day educational program or your child's grades. Your child's privacy will be respected throughout the study. Names are not reported and no information will be released to unauthorized personnel. There is no cost or compensation for participating in this study.

I am very excited about this project and I feel the students will be too. Please sign and return this letter to school by September 9th. If you have any questions or prefer not to allow your child's participation, please contact me. I can be reached at Glenside Middle School, 260-6112.

Sincerely,

Mrs Diane Wilken

Mrs. Diane Wilken

Student's Name _____

Parent's Signature _____

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